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ENVIRONMENTAL COOPERATION AS A PLATFORM TO OVERCOME TENSIONS: THE CASE OF WATER IN CENTRAL ASIA AND AFGHANISTAN

MA thesis

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Abstract

This thesis aims to show the potential of environmental cooperation as a pathway to regional cooperation between rival states. Environmental issues are rarely explored as a platform for states to find common ground on wider questions but the fundamental features of environmental problems can lead to greater trust and a shared vision of resources which may enable closer ties and integration of states within a region. This thesis postulates that environmental issues have four features which make them good candidates to increase overall cooperation: the fact that environmental resources are Common-Pool Resources, the need for technical expertise in environmental management, awareness of climate change, and the vulnerability of powerful states to environmental insecurity.

To display the reasons for this cooperation potential, this thesis conducts SWOT analyses on four cases of water management projects in Central Asia and Afghanistan. These cases ultimately show that environmental issues do have high potential to foster cooperation between states because they help create common frameworks and visions which increase cohesion and because they appeal to foreign investors and partners.

Keywords: environmental cooperation, common-pool resources, water security, sustainability, Central Asia, Afghanistan

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LIST OF ABBREVIATIONS

AFD: Agence Française de Développement (French Development Agency)

ASB: Aral Sea Basin

ASBP: Aral Sea Basin Programs

BRI: Belt and Road Initiative

CA: Central Asia

CAREC: Regional Environmental Centre for Central Asia

CAWEP: Central Asia Water and Energy Platform

CPR: Common-Pool Resources

EC-IFAS: Executive Committee of the International Fund for Saving the Aral Sea

EDB: Eurasian Development Bank

EIB: European Investment Bank

ENCOP: Environmental Conflicts Project

GHG: Greenhouse Gas

HPP: Hydrological Power Plant

ICWC: Interstate Commission for Water Cooperation

IFAS: International Fund for saving the Aral Sea

IPC: Indus Permanent Commission

IRA: Islamic Republic of Afghanistan

IWT: Indus Water Treaty

LWF: Land-Water-Food

MENA: Middle East and North Africa

MRC: Mekong River Commission

NDCs: Nationally Determined Contributions

RWG: Regional Working Group

SDGs: Sustainable Development Goals

SWOT: Strengths, Weaknesses, Opportunities, Threats

TWINS: Transboundary Water Interaction NexuS

WB: World Bank

CHAPTER I: INTRODUCTION

As the 21st century progresses, natural resources, many of which hold economic, political, and strategic importance, face growing pressure. Industrial development and technological advancement rely heavily on materials, energy, and water, particularly in developing countries. However, access to these resources is increasingly constrained: non-renewable minerals are becoming scarcer and more costly to extract, while renewable resources like water are under strain from overuse, pollution, and climate change. Water scarcity is rising globally, with the most severe stress concentrated in the Middle-East and North Africa (MENA) and in Central Asia (CA)[1]. As demand continues to grow, driven by agriculture, industry, and digital infrastructure, available water resources in these regions are likely to decline further, exacerbating existing vulnerabilities.

In these circumstances, the likelihood of states getting into conflict over resources is rather high, especially when it comes to transboundary resources, such as water or clean air. These are considered common resources – they are accessible to all but can be damaged or reduced as they are used[2]. For instance, on a waterway, upstream riparian states (states through which the river flows) may overuse or pollute water before it reaches downstream states. Thus, it is essential to understand both the dynamics of conflicts and the possibilities of cooperation that exist around transboundary resources.

The Central Asian states (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) are intimately tied to each other through their dependence on water resources from the Amu-Darya and Syr-Darya rivers, which take their source in the mountains of Kyrgyzstan and Tajikistan, thus making most Central Asian states downstream riparian states.

Because of the high demand for water and the resource's simultaneous scarcity, it has been expected since their independence that Central Asian states would face conflicts regarding access to water. Uzbekistan, for example, relies heavily on agriculture, which represents around 90% of the country's water usage[3], and loss of access to the resource is an existential threat to the country's economy and food security. However, after over 30 years of independence, water

[1] Abou Zaki et al., 'Expanding the Irrigated Areas in the MENA and Central Asia'.
[2] Ostrom and Ostrom, 'Public Goods and Public Choices'.
[3] Abdullaev, 'Agricultural Water Use and Trade in Uzbekistan: Situation and Potential Impacts of Market Liberalization: International Journal of Water Resources Development: Vol 25, No 1'.

remained an axis of cooperation between states, and despite some periods of tension, the region has seen no "water wars" emerge, and is instead moving towards greater cooperation.

Most of the literature focuses on debates about whether environmental challenges are a source for cooperation or conflict[4], and how rival states can effectively cooperate on the issue[5], but very few studies explore what features of environmental issues make peace-making possible and how it can lead to greater cooperation between states. Studying environmental cooperation between rival states is particularly important in the current context. On the one hand, environmental challenges are intensifying, often generating tensions that can only be effectively addressed through transboundary cooperation, as the environment—whether water, air, natural resources, biodiversity, or the climate—is inherently transboundary and constitutes a shared common-pool resource[6]. On the other hand, as political, religious, and economic tensions rise, environmental cooperation may offer a pathway to build trust and foster dialogue between states, thereby helping to mitigate the risk of conflict.

This research therefore aims to understand the possibility and dynamics of environmental issues as an entry point for cooperation between rival states. The case of water management in Central Asia will offer potentially important insights on the ways in which environmental management may be a source of cohesion, due to the life-threatening consequences conflict over water may have for the region. Furthermore, Central Asia remains one of the few examples of successful regional rapprochement and multilateralism following a period of tensions and among more than two states, and its particular history and geopolitical situation give natural resources in the region an added layer of importance.

Few studies have covered the aspects highlighted above, and it is therefore useful to investigate the relationship between Central Asia's sustained environmental cooperation over water management, and the shift in the countries' relations over the past decade. As such, this thesis aims to bridge this gap and push deeper the understanding of environmental cooperation and its consequences.

Following this brief introduction, this work will be divided into five chapters. First, I will go over the theoretical framework which I will use to answer the research question. This will include a discussion of environmental conflicts and cooperation and Common-Pool Resources

[4] Caldwell, 'Cooperation and Conflict'.
[5] Ide, 'Does Environmental Peacemaking between States Work?'
[6] Ostrom and Ostrom, 'Public Goods and Public Choices'.

(CPR) theory. After this, I will describe the methodology used to conduct the research. Thirdly, there will be a background of the region, and following this, the empirical analysis, which will for each case cover the background of the case, the SWOT analysis, and an overall evaluation of the cooperation potential of the case. Finally, this work will wrap up with conclusions and a discussion of the results found.

CHAPTER II: THEORETICAL FRAMEWORK

1. Environmental conflicts

A definition of environmental conflicts emerged from the Environmental Conflicts Project (ENCOP) in 1992. ENCOP qualifies environmental conflicts as traditional conflicts which are provoked or amplified by environmental degradation (overuse of resources, pollution, or degradation of the living space)[7].

We can consider the environment as a set of resources: clean air, water, minerals, and even ecosystemic services (biological functions of nature that have positive impacts on human society, health, or the economy)[8]. Some are renewable, some are depletable, and most of them are subject to some form of competition.

Environmental degradation may lead to conflict through several mechanisms. The most simplistic explanation comes from a biological conception of resource competition, where resources are essential for survival and, if not available in an unlimited supply, are the source of competition between individuals (here, individuals may also be states, corporations, regions, etc.). However, this explanation is not enough to account for conflict mechanisms involving human societies[9].

In addition, environmental degradation in one part of the world may cause conflict elsewhere because populations will migrate to find more favourable living conditions[10]. Conflict may also emerge due to geographical changes – for instance, with the melting of sea ice in the Arctic, Russia and the United States may face territorial disputes[11]. Furthermore, control of resources may be a source of conflict, even when they are not critical for survival. Stakeholders may wish to establish control of a resource to enjoy the benefits of a regional or global monopoly[12]. Outside these typologies, we can also find environmental degradation as a tool of war. Water in particularly can be weaponised, to put pressure on a population or increase insecurity[13].

Overall, as proposed by Homer-Dixon, we see that environmental degradation exists in a cycle with social and political effects, institutions, social relations, preferences, and beliefs, and is

[7] Libiszewski, 'What Is an Environmental Conflict'.
[8] Maes et al., 'Mapping Ecosystem Services'.
[9] Libiszewski, 'What Is an Environmental Conflict'.
[10] Piguet et al., 'Migration and Climate Change'.
[11] Souhail, *Conflict over Territory and Maritime Routes in the Arctic. The Case of Potential Conflict between the US and Russia over Resources in the Arctic Ocean*.
[12] Lewis, 'Monopoly Exploitation of an Exhaustible Resource'.
[13] Sers, 'The Weaponisation of Water'.

modulated by population, activity per capita, available physical resources and ecosystem variability (Figure 1)[14]. All these factors work together to explain the dynamics between environmental degradation and conflict, both as a linear relationship and as a self-fuelling cycle.

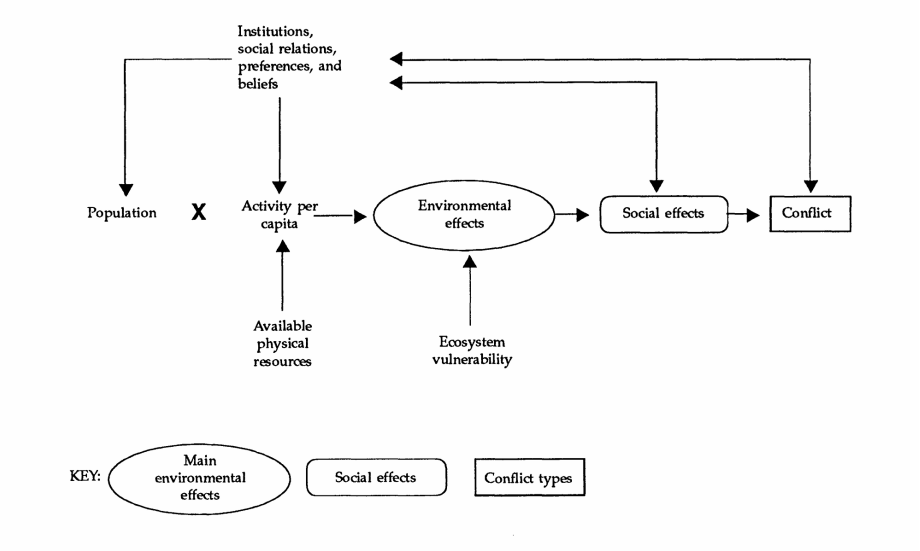

Figure 1. Environmental Change and Conflict[15].

Environmental factors can sometimes be an aggravating factor, like for instance in the civil war in Tigray, where environmental degradation enhanced tensions and devastation in the zone of conflict due to water and food scarcity[16]. Sometimes, environmental factors may be only one of the reasons why a conflict emerges, for example, in the case of the war in Ukraine. The global scarcity of rare earths and other strategic mineral resources can be considered one reason Russia seeks to gain control of Ukrainian territory, as well as why Russia's invasion has garnered so much attention from other stakeholders who depend on these resources[17].

When researchers expect "water wars" in Central Asia[18], however, the assumption is that water scarcity would be the *main reason* for conflict to erupt, and that other factors would amplify the conflicts which may emerge. Here, we therefore look at the implications of water as a resource susceptible to degradation, and whose degradation may cause conflict.

[14] Homer-Dixon, 'On the Threshold'.
[15] Homer-Dixon, 'On the Threshold'.
[16] Lanz, 'Environmental Degradation and Social Conflict in the Northern Highlands of Ethiopia'.
[17] Baranowski, 'From the Russian Invasion of Ukraine to the Battlefield of the Future'.
[18] Weinthal, *State Making and Environmental Cooperation*.

2. Common-pool resources

As a degradable resource, water can therefore be classified as a common-pool resource (CPR). This concept has mostly been theorised by Elinor Ostrom, who defines CPR with two characteristics:

- Users cannot be excluded because of the size or physicality of the resource (for instance, the ocean or the Earth's atmosphere are too large and cannot be contained in a way which would make exclusion possible);
- Their use by one party limits the benefits which can be later enjoyed by other parties [19].

Ostrom further argues that their management comes in opposition to national sovereignty models of resource management, because all CPR are shared by different user groups, which are often transboundary resources, especially when looking at the environment.

A lot of the scholarship on CPR has focused on Hardin's *Tragedy of the Commons*, in which he argues that CPR are doomed to be overharvested and therefore destroyed [20]. This is coherent with Homer-Dixon's description of environmental conflict, as it introduces a competition for resources and suggests that higher conflict potential is influenced by the amount of use/activity that is putting pressure on the resources. CPR are therefore prone to be important sources of environmental conflict.

Ostrom, however, rejects Hardin's conception of and suggested that CPR could be sustainably managed in certain conditions:

- Clearly defined boundaries (the resource and its users are precisely delimited);
- Proportional equivalence between benefits and costs (users are allocated resources proportionally to their needs);
- Collective-choice arrangements (people affected by the use of the resource are involved in decision-making);
- Monitoring (accountable monitors are involved in making sure rules are being followed by users);
- Graduate sanctions (sanctions depend on the gravity of the offence);

[19] Ostrom and Ostrom, 'Public Goods and Public Choices'.
[20] Hardin, 'The Tragedy of the Commons'.

- Conflict-resolution mechanisms (low-cost, easily accessible mechanisms can be used);
- Minimal recognition of rights to organise (users can legitimately devise their own institutions);
- Nested enterprises (multi-level institutions are responsible for collecting, monitoring, conflict-resolution and governance)[21].

Ostrom's theory establishes a very solid basis for CPR management, but remains focused on local governance. To explore joint governance between states on large-scale international resources, Kurowska's *Analysis of the Determinants of Sustainable Cross-Border Cooperation* offers another layer of conditions[22].

In addition to Ostrom's principles, Kurowska emphasises the need for motivation for a partnership, compatibility in the goals, the understanding and the resources of partners, and direct communication[23]. Though her paper is focused on general cross-border partnerships, these conditions largely apply to the management of CPR. For instance, LeMarquand comes to similar conclusions, specifically about river management:

"The preconditions for cooperation are quite simple: the 'political will' to cooperate, encouraged by some sense of reciprocal interest. One might add to this effective treaties, agreements, precedents, practices, and institutions that provide clear guidelines as to each country's responsibilities and obligations; free communication among officials; and common problem-solving mechanisms."[24]

We therefore end up with the following overarching framework for the sustainable management of CPR between cross-border partners:

[21] Ostrom and Ostrom, 'Public Goods and Public Choices'.
[22] Kurowska-Pysz and Szczepańska-Woszczyna, 'The Analysis of the Determinants of Sustainable Cross-Border Cooperation and Recommendations on Its Harmonization'.
[23] Kurowska-Pysz and Szczepańska-Woszczyna, 'The Analysis of the Determinants of Sustainable Cross-Border Cooperation and Recommendations on Its Harmonization'.
[24] Lemarquand, 'Preconditions to Cooperation in Canada-United States Boundary Water' p.238.

Table 1. Sustainable CPR management conditions outlined by *Kurowska* (in italics in the table) and **Ostrom** (bold in the table).

COHERENCE	- **definition of the resource, and of the community** - **coherence between the resource and the rules of its management** - *compatible goals between partners* - *understanding of risks and benefits* - *appropriate resources*
ACCOUNTABILITY	- **sanctions for breaking the rules** - **surveillance mechanism** - **quick access to conflict resolution mechanisms and institutions**
INDEPENDENCE	- **self-organisation** - **multi-scale organisation** - *transparency and direct communication*
EQUALITY	- **participation of all users in rule-making** - *preparedness to share benefits and costs* - *equal rights between users*
MOTIVATION	- *genuine motivation of partners* - *focus on long-term partnership*

Many authors have used a CPR model to describe the management of water resources, for example in Australia[25], California[26], or Bolivia[27]. These studies approach solutions of water management through the CPR model, suggesting it, as above, as a framework to both classify management initiatives and regulations, and to evaluate the sustainability of such initiatives.

Most of the literature on water as a CPR - and on CPR in general - relies, as mentioned above, on studies of localised management, at the national, local, or even household level. However, this work introduces this model to international transboundary water management, which as demonstrated above is useful to understand relations between states sharing a resource.

[25] Sarker et al., 'A Common-Pool Resource Approach for Water Quality Management'.
[26] Heikkila, 'Institutional Boundaries and Common-Pool Resource Management'.
[27] Wutich, 'Water Scarcity and the Sustainability of a Common Pool Resource Institution in the Urban Andes'.

3. Environmental cooperation between rival states

This part looks at cases of water management cooperation between rival states. Since conflict over water is very costly, its management is therefore a likely source of interstate cooperation, even among rival states, to limit the existential threat posed by water insecurity. These examples give context and perspectives on the Central Asian case.

a. The Indus Water Treaty

The most cited example of cooperation over water between rival states is the case of the Indus Water Treaty (IWT), a multilateral treaty signed by India and Pakistan with the World Bank (WB) in 1961 which was for a long time deemed successful in limiting tensions. The IWT assigned the use of the Indus's tributaries between the two countries, focusing on the rights of local riparian communities. The agreement also remained flexible, allowing for populations at the border to use water domestically even when their nationality did not coincide with the owner of the tributary in question [28].

The treaty pushed for the involvement of international partners as an accountability mechanism. Indeed, external parties could not fund projects on the rivers without agreement by both Pakistan and India. The IWT also has a dispute-resolution mechanism which relies on the Indus Permanent Commission (IPC), led by representatives of both countries, and of the World Bank as a neutral mediator [29].

From a liberal point of view, India and Pakistan therefore have political and economic incentives to cooperate over the Indus waters, because both countries need to retain access to the resource on amiable terms, and because they need good relations to have access to international support for infrastructure or development projects [30].

The idea behind the IWT was in part to remove the water issue from the political sphere and place it instead in the hands of the more technical focus of the IPC. The rationale behind this is that if the water is managed effectively, with sufficient and flexible access to the resource by both countries, no securitisation is needed, and tensions can be resolved through a technical mediation [31].

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[28] Alam, 'Questioning the Water Wars Rationale'.
[29] Couves, *The Role of Internationally Supported Conflict Resolution Mechanisms in Transboundary Water Conflicts*.
[30] Couves, *The Role of Internationally Supported Conflict Resolution Mechanisms in Transboundary Water Conflicts*.
[31] Qureshi, 'The Indus Waters Treaty and the Role of World Bank as Mediator'.

However, several issues remain. Indeed, it is impossible for water-related considerations to be entirely removed from the political sphere in this case, because they can overlap with questions of energy generation, border or ethnic issues, or simply be the site of ongoing rivalries between both parties. Despite the resolution mechanism in place, disputes have emerged as soon as the 60s, often concerning dam projects. The change of downstream water flow was of course a concern, but it can also be noted that overarching tensions between India and Pakistan did not facilitate any compromises between them, regardless of the institutional engagements of the IWT [32]. In addition, changing conditions, due to population growth and climate change also redistribute the stakes. This requires an update to the IWT, which in the current circumstances, does not appear very likely. The treaty has reached the limit of its diplomatic capacities and will not be able to solve future growing tensions over water between the two countries, thus possibly putting an end to the era of relative cooperation over the Indus [33].

Two important takeaways which are applicable to the Central Asian case may come out of this: first of all, we can see the importance of having the possibility to update agreements as conditions change, in order to avoid finding any progress blocked by unwillingness to renegotiate after several decades of deteriorating conditions and trust (in CPR management terms, this would relate to coherence). Secondly, the IWT shows the potential of implementing neutral parties into the resolution mechanism, as well as put the focus on technical rather than political resolution.

b. The Mekong River Basin

The Mekong river case is mor closely related to the Central Asian case because the river is divided between more than two states. Indeed, the Mekong is shared between six states (China, Myanmar, Loas, Cambodia, Thailand and Vietnam) [34].

These states exist in relative peace at the moment, but conflict has erupted between them in the past and some tensions remain. Furthermore, the attribution of the Mekong's waters itself proves to be a point of tension between them, since millions of people all along the river depend on it for survival and development, and damming projects in upstream states, specifically in China, threaten water access downstream [35].

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[32] Miner et al., 'Water Sharing between India and Pakistan'.
[33] Alam, 'Questioning the Water Wars Rationale'.
[34] Couves, *The Role of Internationally Supported Conflict Resolution Mechanisms in Transboundary Water Conflicts*.
[35] Jacobs, 'The Mekong River Commission'.

The main institution which regulates the management of the Mekong waters is the Mekong River Commission (MRC), which exists since 1957. The MRC is important especially to monitor water conditions in the basin, and to offer a solid basis for knowledge-creation about the river[36].

However, the commission is in no way leading to regulatory measures and has had little impact on the management of the resources in the basin. Furthermore, membership to the commission has been erratic, with states joining and leaving throughout the decades, and with China never actually joining the institution, despite being the utmost upstream state[37].

This therefore puts the question of membership to institutions at the centre of the issue when it comes to multilateral (as opposed to bilateral) transboundary water management. This can naturally be applied to the Central Asian states, whose water management institutions (notably the International Fund for Saving the Aral Sea, IFAS, or the Interstate Commission for Water Cooperation, ICWC) have been long-lasting and crucial to foster cooperation between states.

c. The River Jordan

Literature on the river Jordan basin often focuses on the notion of a hydro-hegemon. It is the case in all river basins, according to Allan in his description of water scarcity in the Middle East[38]. He cites Egypt for the Nile River Basin, and therefore Israel when it comes to the River Jordan. In our previous examples, China would be the hegemon for the Mekong basin, and Uzbekistan for the Amu-Darya. As we can see, the hydro-hegemon is not necessarily the most upstream state. For the Jordan River, Israel is considered as the hydro-hegemon, due to its economic, military and political power. As the upstream state, it also controls the water supply in Jordan, and in the Palestinian West Bank.

The work of Nicole Harari focuses on environmental peace-making in the context of the Jordan River basin, and her central argument is that peace-making takes advantage of common grounds[39]. A shared identity, shared goals or a common conception of the river and the environment can encourage empathy, and therefore a move away from violence and conflict. In a context where identity is a major driver of conflict, sharing goals and concerns may be a challenge, but Harari suggests that environmental cooperation, once it is started, has the

[36] Backer Bruzelius, 'The Mekong River Commission'.
[37] Jacobs, 'The Mekong River Commission'.
[38] Allan, 'Hydro-Peace in the Middle East'.
[39] Harari, 'A Case-Study of the Good Water Neighbours Project'.

potential to foster a common approach, and therefore create a shared identity and increase cooperation on other issues (Figure 2)[40].

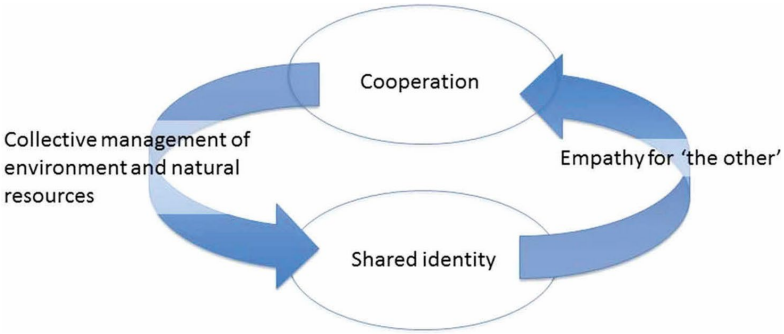

Figure 2. The process of creating a shared identity through environmental peacebuilding[41].

This conception of a shared identity mirrors Kurowska's notion of shared goals between partners, and therefore fits the previously detailed conception of sustainable management of water resources. However, what is missing in Harari's argument is factors to trigger cooperation in the first place. If states are rivals, there is but a slim chance that they should spontaneously choose to cooperate, especially when the upstream state is the hydro-hegemon.

On this point, Wessels suggests that in some cases, water conflicts are simply too costly and too risky for states to engage in[42]. However, in the case of an extreme power imbalance such as in the Jordan River basin, the costs of a conflict is rather low for the upstream, hegemonic state, making cooperation reliant on either empathy, or an advantage to control the downstream states with the threat of water scarcity[43].

NGOs and other external organisations may be catalysts of cooperation[44]. On the long-term, cooperation in this case requires peace-building on multiple issues, with environmental cooperation the pretext to begin this rapprochement[45]. Environmental conservation arguments

[40] Wessels, "'Playing the Game", Identity and Perception-of-the-Other in Water Cooperation in the Jordan River Basin'.
[41] Wessels, "'Playing the Game", Identity and Perception-of-the-Other in Water Cooperation in the Jordan River Basin'.
[42] Wessels, "'Playing the Game", Identity and Perception-of-the-Other in Water Cooperation in the Jordan River Basin'.
[43] Wolf, 'The Jordan Watershed'.
[44] Wessels, "'Playing the Game", Identity and Perception-of-the-Other in Water Cooperation in the Jordan River Basin'.
[45] Williams, 'Peace Like a River: Institutionalizing Cooperation Over Water Resources in the Jordan River Basin', pt 313.

can, on the short-run, be made to encourage all parties to use water responsibly, and share resources in order to conserve the water cycle, the downstream biodiversity and the benefits offered by the river to the riparian states[46] but this is a more technocratic approach, which cannot solve deep-rooted identity conflicts.

According to these arguments, environmental cooperation needs to come with shared goals and concerns, and a common identity surrounding the river, as well as a process of peace-building which extends not only to the environmental sphere but to other issues as well.

The outcome of these cases in terms of spillover cooperation into other domains than water management is fairly diverse. The IWT has limited water-related conflicts but not conflict on other issues, and not on the long-term, while the Mekong Basin case has shown that some institutional progress could help collect data and construct monitoring systems but that this was not enough to foster proper decision-making and coherent cooperation on resource management as a whole. The literature on the Jordan River has shown that environmental peace-building is possible only with a holistic approach which enable cooperation not only in the environmental sector.

The Central Asian case operates on a unique context of inter-state relations and existing institutions. However, the findings of this literature review can still shape understanding of Central Asia and are taken into account while formulating the hypotheses of this work.

4. Benefits of environmental cooperation

As we saw, environmental degradation and resource scarcity can be a significant source of tension and conflict, but can in some cases, be a driver of interstate cooperation, for example, through the creation of national parks, the management of a threatened body of water, or the development of solutions to improve air quality. Transboundary environmental treaties are fairly common and generally offer a wide range of benefits. For example, when talking about cooperation between riparian states, Sadoff mentions four types of benefits:

- benefits to the river (environmental and ecosystemic benefits…);
- benefits from the river (development of food and energy independence, climate change mitigation…);
- reduction of costs because of the river (less costs due to tensions and environmental degradation…);

[46] Phillips, 'The Jordan River Basin: At the Crossroads between Conflict and Cooperation'.

- benefits beyond the river (heightened trust, economic integration…)[47].

Added to this, the Land-Water-Food (LWF) nexus concept can be useful to understand the benefits of environmental cooperation and its theoretical outcomes. Based on a interdisciplinary vision of water security[48], this framework interrelates land availability, water use and food production through the lens of sustainable development (see Figure 3). Through a LWF nexus approach, we can qualify the relationship between sustainable land and water use, and agricultural/food production, as a trade-off, as long as agricultural practices are inefficient and unsustainable[49]. A clear example of this is the Aral Sea catastrophe. Due to the intensive culture of wheat and cotton in Uzbekistan since the 60s, the Aral Sea lost around 90% of its volume, because the flows of the Syr-Darya and Amu-Darya, which fed water into the sea, were dramatically reduced due to irrigation[50].

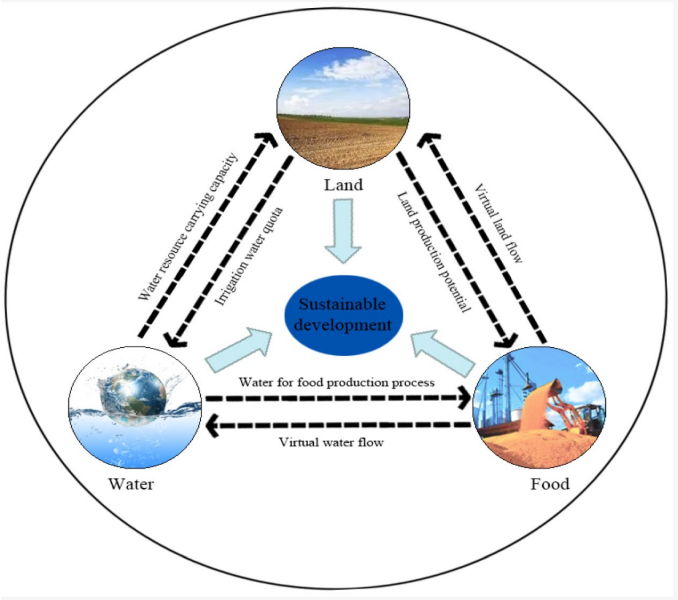

Figure 3. Land-Water-Food nexus[51].

A move towards a lower cost of the trade-off on the LWF nexus in Central Asia, while maintaining the region's food security and development goals, implies a growth in the efficiency of agricultural practices or/and of land and water use. Following this logic, water

[47] Sadoff, 'Beyond the River'.
[48] Zeitoun, 'The Global Web of National Water Security'.
[49] Han et al., 'Evolution of Agricultural Development and Land-Water-Food Nexus in Central Asia'.
[50] Micklin, 'The Past, Present, and Future Aral Sea'.
[51] Liu et al., 'A Coupling Coordination Assessment of the Land–Water–Food Nexus in China'.

security would then be improved on all aspects and would limit local and transboundary tensions (Figure 4).

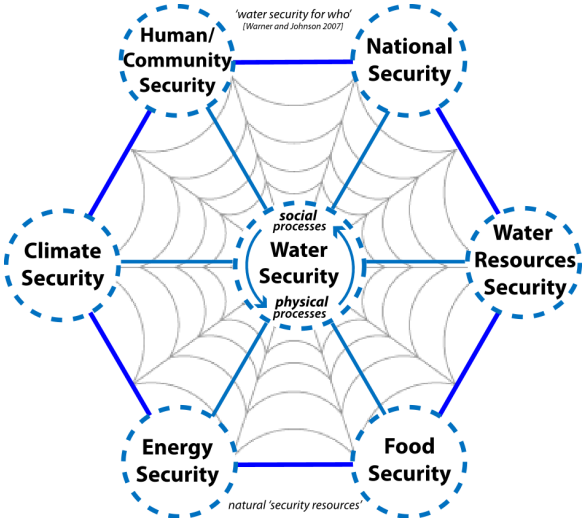

Figure 4. Web of water security [52].

The nexus and web conceptions of water security show why environmental cooperation have potential to spillover into other areas of cooperation since environmental issues are deeply multidisciplinary. However, though benefits are clear, the reality is often different, as seen in the cases presented above. Indeed, water management is a long-term issue, and is therefore easily be surpassed by short-term concerns, such as security or economic development. As such, cooperation may seem unattractive, especially in situations of scarcity and competition, where states want to maximise their access and use of the resource, regardless of the needs of neighbours [53].

Proponents of critical hydropolitics argue that for sustainable cooperation to take place, cooperation in itself should not be seen as the goal. Rather, the goal ought to be the benefits "beyond the river" as highlighted by Sadoff. This is particularly the case in developing regions, where cooperation for its own sake is usually less relevant than development goals [54].

However, Sadoff's theory shows us that environmental cooperation is an obvious step towards heightened trust and partnership between rival states. Pushed by fairly physiological needs, such as the pressing necessity of adapting to climate change, or the fear of facing a joint resource crisis which would hinder all sates, they may start building institutions, infrastructure, and

[52] Zeitoun, 'The Global Web of National Water Security'.
[53] Aghaindum, *Water as a Weapon of International Confrontations*.
[54] Sneddon and Fox, 'Rethinking Transboundary Waters'.

arenas for more or less formal dialogue to take place. This may not always lead to conflict resolution, but may help foster greater trust, and new opportunities for cooperation on other topics, as explored in cases such as the Jordan river or the Mekong basin[55]. In addition, cooperation may imply greater mutual dependence and would therefore make conflict more costly, thus fostering greater opportunities for stability and peace-building[56].

A small body of literature supports these arguments, giving examples of environmental cooperation as a tool for peace-making. These studies highlight that environmental issues are relatively easy to cooperate on and can help create frameworks for more interaction between stakeholders and increase trust between parties if cooperation is successful[57]. Environmental cooperation can be an entry point for cooperation and dialogue between parties can therefore highlight common interests[58]. However, this research is quite narrow and focuses mostly on the work of NGOs and local stakeholders rather than regional peace-building and diplomacy between states.

5. Environmental interaction

Before concluding this theoretical part, nuance can be brought to the cooperation/conflict dichotomy. This nuance is useful to understand how conflict and cooperation can exist in the same region and resolves the paradox of cooperation between rival states.

The concept of interaction, opposed to the conflict/cooperation binary, is developed by Zeitoun and Mirumachi[59], based on Mirumachi's Transboundary Water Interaction Nexus (TWINS). Figure 5 is an illustration of TWINS, based on the relationship between Sudan and Egypt regarding the Nile, with the numbers representing the temporal shift of the dynamic between the two countries regarding the river.

[55] Harari, 'A Case-Study of the Good Water Neighbours Project'.
[56] Allan, 'Hydro-Peace in the Middle East'.
[57] Ken et al., 'Building Peace Through Environmental Cooperation'.
[58] Maas et al., 'From Conflict to Cooperation?'
[59] Zeitoun and Mirumachi, 'Transboundary Water Interaction I'.

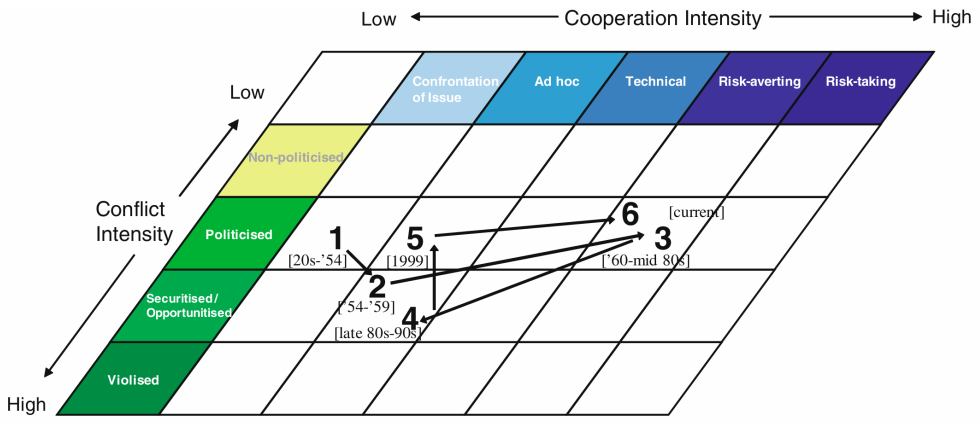

Figure 5. TWINS matrix applied to Egypt-Sudan relations about the Nile River[60].

This conception is essential for this study, because it suggests that resources can be securitised and still allow for cooperation. In this example, high levels of conflict and high levels of cooperation even coexist. As such, though in conflict, two states may cooperate on technical points, or on risk management, while the resource remains securitised[61].

[60] Zeitoun and Mirumachi, 'Transboundary Water Interaction I'.
[61] Mirumachi, *Transboundary Water Politics in the Developing World*.

CHAPTER III: METHODOLOGY

1. Research design and hypotheses

Above, we have seen the need to open up research to the consequences of cooperation between states on environmental issues, and this thesis therefore seeks to answer the following question:

How and to what extent can environmental cooperation induce regional cooperation and help overcome tensions between rival states?

To answer this question, I analyse four case studies of water management in Central Asia. The analysis will be conducted using a SWOT methodology (Strengths, Weaknesses, Opportunities, Threats) outlined below (Table 2). The analysis will be guided by the following hypotheses:

Environmental cooperation is an opportunity for overcoming tensions between rival states because:

a. The shared sustainable management of common-pool resources increases cohesion;
b. The need for technical expertise implies the creation of specific institutions and infrastructure;
c. Climate change awareness makes conflict appear more costly;
d. States may be impacted regardless of their economic and political power and therefore rely on cooperation with others.

Hypothesis (a) can be tracked from Ostrom's CPR theory, where she shows that sustainable management of CPR requires cohesive mechanisms for problem-solving, monitoring and decision-making, which in turn can increase trust between partners and spill over into other fields. Hypothesis (b) is suggested by Kurowska's criterion of common knowledge in transboundary cooperation, as well as by TWINS's mention of technical cooperation, and the conclusions drawn from the review of the IWT, where technical expertise enables to move the issue out of the political sphere. Hypothesis (c) flows from Kurowska's mention of risk awareness, as well as from TWIN's category of risk-averting cooperation. It also comes from the constant mention of climate change by Central Asian stakeholders. Finally, hypothesis (d) comes from Kurowska's criterion of genuine motivation of partners, from Ostrom's definition of CPR and from Homer-Dixon's display of environmental vulnerability as a result of activity surrounding the resource.

2. Method of analysis

A SWOT analysis focuses on four areas: Internal strengths, internal weaknesses, external opportunities and external threats. SWOT analyses are widely used in business and industry sectors, but have also been used to conduct policy analysis. For instance, Karakosta & al. use a SWOT analysis to determine cooperation potential in the energy sector[62], Herrera-Franco & al. use a similar framework to evaluate the legal framing of water management in Andean communities[63], and Belay & al. use it to study joint water management in the Nile Basin[64].

The analysis will be conducted using the following framework, and answers to the hypotheses will mostly be drawn from the last column:

Table 2. SWOT analysis framework.

Dimension	**Description**	**Evidence**	**Impact**
Strengths	Internal advantages	*Eg: presence of accountability mechanisms*	How do these advantages foster cooperation?
Weaknesses	Internal limits	*Eg: corruption of institutions*	How do these weaknesses hinder cooperation?
Opportunities	External benefits	*Eg: involvement of international institutions*	How do these opportunities offer a chance to increase cooperation?
Threats	External risks	*Eg: geopolitical tensions between neighbours*	How do these threats put cooperation at risk?

This SWOT framework will be combined with the CPR management framework seen above (Table 1), featuring coherence, accountability, independence, equality and motivation. The CPR framework will be useful to explore the first hypothesis but also to offer guidelines on how to interpret the impact different features will have.

[62] Karakosta et al., 'Investigating EU-Turkey Renewable Cooperation Opportunities'.
[63] Herrera-Franco, 'Water Governance PESTEL/SWOT-TOWS Analysis in the Andean Community of Nations (ACN)'.
[64] Belay et al., 'SWOT Analysis and Challenges of Nile Basin Initiative'.

This method is relevant here because it enables an in-depth understanding of the different cases while highlighting the points related to interstate cooperation. Its combination with the CPR framework helps direct the analysis towards the research question and makes the study more focused. Furthermore, this methodology will easily integrate content analysis of the different documents, which will be categorised within the SWOT analysis.

As such, the method employed will follow these steps:

1. Collection of data
2. Review of the collected documents and classification of arguments in individual SWOT tables (examples in Annex 2);
3. Integration of arguments in a single SWOT table;
4. Interpretation of impacts for each argument;
5. Assessment of the implications for regional cooperation and overall evaluation of the hypotheses.

3. Case selection

This research will rely on a four case studies:

1. Rogun Dam, on the Vakhsh River in Tajikistan;
2. Kambar-ata-1 Hydroelectric Power Plant (Kambar-ata-1 HPP), on the Naryn river in Kyrgyzstan;
3. International Fund for saving the Aral Sea (IFAS), established by all five Central Asian states in 1993;
4. Qosh-Tepa canal, diverting water from the Amu-Darya in Afghanistan.

These cases were chosen because they represent projects with some degree of successful cooperation between Central Asian states. The three of them which are infrastructure projects are represented on the map in Figure 6.

Rogun Dam and Kambar-Ata-1 HPP are the most important infrastructure projects of the region, and have been studied extensively. The tensions surrounding the projects at the beginning of their conception gives a chance to study the case of cooperation between rivals, and may offer conclusions that consider the shift in discourse and perspective of rival states when talking about each other.

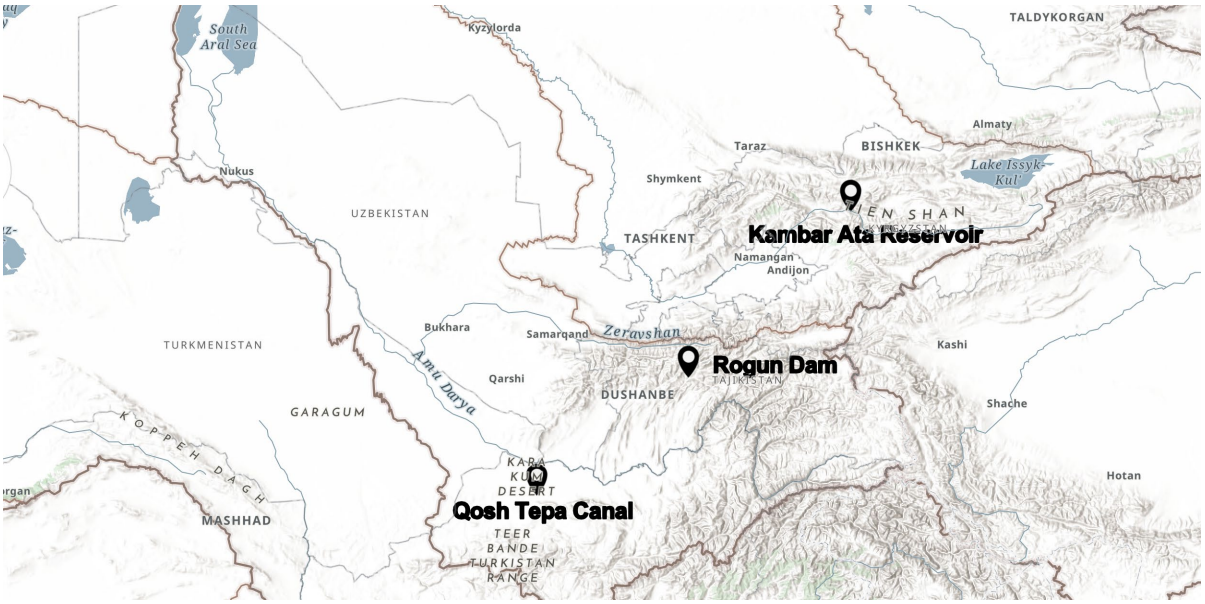

Figure 6. Map representing the location of three of the case studies. The map was constructed using the online National Geographic mapmaker.

The IFAS organisation differs in the sense that it is a not a hydrological engineering project, but as an organisation, it has proven to be the driving force of water cooperation in Central Asia, and is therefore relevant to this study. The fact it is an institution and not an infrastructure project does not matter because this is not a comparative study.

The choice to look at Qosh-Tepa canal in Afghanistan, which is not formally part of Central Asia, comes from the understanding that as a riparian of the Amu-Darya, Afghanistan's water management has an impact on the entire region. This gives the opportunity to study cooperation dynamics that are distinct from those that now exist between Central Asia states and understand whether and how cooperation is taking place between Central Asia and Afghanistan.

4. Sources

The sources from this research will come from:

- The World Bank;
- The United Nations;
- The governments of the five Central Asian countries.

These institutions were picked because they were involved in the projects, with political, financial or technical support, are decision-makers, or offer opinions as observers. I aimed to pick a diversity of institutions and scales, with a national, regional and international perspective, so that I could get insights on a broad range of issues surrounding the case studies, both from

participants directly impacted, and from more detached organisations like the UN or the World Bank.

The latter offer an overview of the projects and the World Bank, particularly, highlights in great detail processes of negotiations and technical details. Meanwhile, national governments offer perspectives on their own involvement on the project, but also give regional perspectives. The Turkmen government, specifically, reports on events in Central Asia even when they do not affect Turkmenistan directly, through the affiliated news agency nCa.

Though there are other participants in the projects than those listed above, I wanted to strike a balance between organisations of international authority and national/regional perspectives, and found that this selection would offer adequate coverage to answer the research question. Smaller scale sources, such as perspectives of locals, contractors and companies, are important and interesting, but here they are less relevant to the research question, which focuses mostly on political aspects at the scale of states and their foreign policy.

To collect data, I therefore entered the name of each of the case studies into the search engine of each source and collected all the relevant documents that came up. I deemed a document relevant when it explicitly mentioned the project and provided information beyond simply naming it. Furthermore, the documents needed to mention the project in the context of the region. For example, I did not choose documents which mentioned details of the situation of Rogun Dam's construction workers, but only documents which linked it to water management in the region. Furthermore, organisations like the World Bank conduct research and publish reports in several versions and different formats. As such, I have picked only one of the available documents concerning one investigation/meeting/consultation, etc.

The found documents are collected into spreadsheets available in Annex 1 of this thesis.

CHAPTER IV: BACKGROUND OF THE REGION

1. Introduction to Central Asia

The region of Central Asia historically includes five states: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Other states such as Afghanistan or Azerbaijan are sometimes informally included in the region, but those five states remain at the core of the political, cultural and economic landscape of the region.

They are, nonetheless, fairly new states. Indeed, until their independence from the Soviet Union in 1991, the Central Asian states did not exist as political entities. The current borders were only drawn in the 1920s and do not represent the historical and cultural realities of the region.

Two effects emerge from this. Firstly, their institutions and governance mechanisms are still fragile. Secondly, because of the borders drawn fairly arbitrarily, tensions have existed in the region since the 90s[65]. At the beginning of Central Asia's independence, the region was particularly divided. Civil war broke out in Tajikistan, and the borders in the Ferghana valley were highly disputed, with violent outbreaks of conflict due to border disputes resulting in several hundred victims and causing the displacement of many locals. Critical tensions also existed surrounding water management, between upstream and downstream states[66].

A climate of distrust therefore existed within the region, with borders often partially closed, few connections between the different capitals, and overall very little trade due to border controls, visa restrictions, market incompatibilities and political tension[67].

However, Central Asia is also a highly vulnerable region. All five states are landlocked, and generally poorly connected to economic markets and political hubs outside of the region. Terrain makes it difficult to access other neighbours, and the route favoured until recently for communication between Asia and Europe went through Russia. In addition, the region also faced a crisis linked to the drop of the price of essential commodities and new threats are emerging in the region, including climate change and national security[68].

As such, Central Asian states quickly saw the need to unify and integrate, in order to face those challenges as a region, rather than as isolated states. Several factors triggered this desire to face

[65] Dadabaev, 'Securing Central Asian Frontiers'.
[66] Abbink et al., 'Sources of Mistrust'.
[67] Batsaikhan and Dabrowski, 'Central Asia — Twenty-Five Years after the Breakup of the USSR'.
[68] Batsaikhan and Dabrowski, 'Central Asia — Twenty-Five Years after the Breakup of the USSR'.

challenges as a united region, such as tensions with Russia, growing relations with China, and leadership changes, which were especially significant in Uzbekistan and Kazakhstan.

One of the most striking tools of this rapprochement was the beginning of yearly consultative meetings to increase dialogue between all five states. This also permitted the intensification of relations through regional institutions which continued to exist despite tensions [69].

Despite the easing of tensions, Central Asia remains divided on some difficult questions, such as security, connectivity, energy and water management. According to Central Asian officials, these issues are often overlooked in meetings and little progress has been made towards a unified approach to those issues which are at the heart of regional preoccupations. A framework to deal with these issues would require Central Asian states to cooperate on a united, comprehensive agenda [70].

2. Foreign policy

Central Asia's resources and its strategic placement at the centre of historical trade routes and spheres of influence make it particularly interesting to global players, while its vulnerabilities imply both challenges and investment opportunities (Figure 7). As such, it has in the past been the stage of a "Great Game" between global powers. Some analysts consider the rise of a "new Great Game", as China, Russia, the United States, as well as the EU, do indeed all hold interests in the region currently, related to their own domestic challenges and foreign policy goals [71].

Central Asia is still considered in many ways within the Russian sphere of influence, as Russia continues to be omnipresent in politics, and continues to solidify its interests in the extraction of resources. Russia also continues to hold cultural interests in Central Asia, with numerous Russian nationals living in the region, and Russian being the most widespread language throughout all five Central Asian states. This cultural influence is however slowly disappearing and Russia is struggling to keep the upper hand upon the great game in Central Asia [72].

China's interests are mostly economic. Beyond being interested in resources in Central Asia, China also needs the region to develop its Belt & Road Initiative (BRI), linking the Chinese market to the European and African markets, through the "New silk road" which would therefore cross through major Central Asian cities, including Almaty, Bishkek, Tashkent,

[69] Umirzakova and Marat, 'Consultative Meetings of the Heads of States of Central Asia'.
[70] Knox and Sharipova, 'Consultative Authoritarianism in Central Asia'.
[71] Menon, 'The New Great Game in Central Asia'.
[72] Silvan, 'Russian Policy towards Central Asia 30 Years after the Collapse of the Soviet Union: Sphere of Influence Shrinking?'

Samarkand and Dushanbe before reaching the Middle East, and entering Europe through Turkey[73].

The United States' interests have overall been more veered towards security, especially due to the region's proximity with Afghanistan, and the risk of terrorism rising from within Tajikistan. The region also appears interesting to the US due to its proximity with the Middle East, China, and Russia, and therefore represents a strategic partner[74].

Finally, the EU may see itself strengthening ties to Central Asia in particular for access to resources. As oil and gas supplies become more volatile due to sanctions against Russia and conflict in the Middle East, Central Asia might be a good candidate to supply part of the market. In addition, the energy transition taking place in part of Europe will require other resources present in Central Asia. France has already begun strengthening its relationship with Kazakhstan, in order to secure a supply of uranium, necessary to the production of nuclear energy[75].

Figure 7. Map of energy reserves and pipelines in Central Asia, 2014.[76]

[73] Bitabarova, 'Unpacking Sino-Central Asian Engagement along the New Silk Road: A Case Study of Kazakhstan'.
[74] Patnaik, 'Regionalism and Regional Cooperation in Central Asia - Ajay Patnaik, 2019'; Nichol, *Central Asia's Security*.
[75] Mesbahi, 'Regional and Global Powers and the International Relations of Central Asia'.
[76] Dashdorj, *Russia's and China's Quiet Contest in Central Asia*.

The region also faces pressure from other powerful neighbours such as Pakistan, Azerbaijan and Iran, who have interests in and cultural ties with the region, and whose own conflicts may sometimes hinder Central Asian development. One example of this is the possibility of opening the trans-Afghan corridor, an initiative supported by Central Asia and Pakistan, but not by India[77].

Central Asia's response to this heightened involvement of foreign powers in the region has been to establish a unified front. Rather than unilaterally negotiating with outside partners, the region has adopted a C5+1 framework. This framework implies a set of multilateral relations between Central Asia as a region, and foreign partners. The aim of this is to increase cohesiveness between Central Asian countries and encourage foreign partners to strategically plan with the region as a whole, thus encouraging multilateral negotiations which benefit the whole region[78].

The most important point to take from this brief overview of international relations in Central Asia for our study is that water management remains one of the few issues that does not directly interest outside powers. This makes it a good candidate for heightened cooperation in the region, because it is the most localised of complex issues like energy or connectivity. Of course, water is also a factor when it comes to security or trade, but its availability and management remain more or less entirely in the hands of the Central Asian states.

3. Water resources

As we have seen so far, water is a crucial topic in Central Asia. To understand the framing of this study, and its potential importance, it is useful to get an overview of the state of water resources in Central Asia, as well as the way it has been managed so far.

Figure 8 is a fitting illustration of the situation of water in Central Asia. The region counts five major river basins, which are concentrated primarily in the Eastern parts of the region. This therefore makes Tajikistan, Kyrgyzstan and the East of Kazakhstan the upstream regions, through which the water flows first before entering Turkmenistan, Uzbekistan and the West of Kazakhstan[79].

[77] Keliwaal and Mubariz, 'International North-South Transport Corridor Opportunities, Challenges, and the Role of Afghanistan'.
[78] Tolipov, 'The "C5+1" on the Central Asian Geopolitical Chessboard'.
[79] Mirzabaev, 'Climate Volatility and Change in Central Asia'.

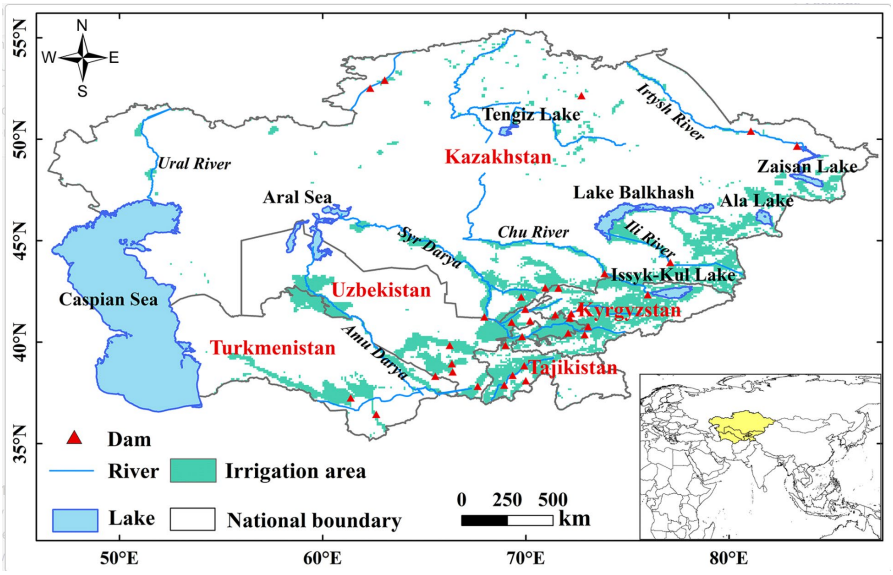

Figure 8. Rivers and reservoirs and their use in Central Asia[80].

The two major basins are the Syr-Darya and Amu-Darya basins, which represent the majority of the water resources in Central Asia, as well as the primary sources for irrigation purposes. Indeed, due to the low precipitation volume in the region, very little water is available for agriculture outside of irrigation from the rivers. This makes the management of rivers essential for food supply, employment and regional development[81]. Here, the LWF nexus comes into play, with an emphasis drawn on the need for more efficient agricultural practices, to avoid wasting water, and improve the yield of crops per unit of land and per unit of water used[82].

Soviet legacy plays an important role affecting the LWF nexus in the region. After independence, Central Asia inherited a wide, sophisticated hydrological system developed by Soviet engineers to irrigate the land over the region and assure cotton supply for the rest of the Union. The Soviet system, which championed irrigation at all costs, therefore relied on large reservoirs to ensure continued water supply to the crops downstream, in the Uzbek and Kazakh plains. As we can see on Figure 8, this therefore led to the creation of over 60 reservoirs and dams between 1950 and 1980, concentrated in the upstream, mountainous regions. The stocked water was distributed downstream and since the economy was centralised under the Soviet system, upstream regions received products of downstream agriculture and energy supply in exchange for stocking water[83].

[80] Wang et al., 'Water Resources Management and Dynamic Changes in Water Politics in the Transboundary River Basins of Central Asia'.
[81] Mirzabaev, 'Climate Volatility and Change in Central Asia'.
[82] Han et al., 'Evolution of Agricultural Development and Land-Water-Food Nexus in Central Asia'.
[83] Rakhmatullaev et al., 'Facts and Perspectives of Water Reservoirs in Central Asia'.

However, at the fall of the Union, this distribution of water caused issues and tensions. Without a central government unifying the region, there was no longer a centralised authority to deal with issues like upholding the systems, warning downstream regions in case of an accident or malfunctioning upstream, or even to manage the distribution of resources and the barter system between upstream and downstream [84].

Beyond food production, water is also useful for energy production, especially in places like Kyrgyzstan or Tajikistan, with few oil and gas resources. The water-energy nexus also implies a trade-off between energy production and the water flow in the river below. The accumulation of water in a reservoir means that upstream states are in control of how much water is available downstream, with the possibility of a loss of water resources due to a higher evaporation surface in the reservoir, mismanagement and accidents leading to either a scarcity of water below while water is being accumulated, or a surplus when energy is needed, leading to floods [85].

Water management in Central Asia is therefore irremediably linked to political and economic concerns, which are very likely to lead to conflict if the Central Asian countries do not cooperate and deal with the resource at a regional level rather than a national scale [86]. Climate change, in addition, risks to heighten scarcity and tensions, both on the LWF nexus and on the water-energy nexus. In Central Asia, warming has already reach more than 1°C, and due to heightened evaporation, lower precipitation regimes and the melting of glaciers, the Amu-Darya and Syr-Darya are expected to lose 15 to 30% of their flow in the next decade [87].

4. Water management

As mentioned above, some interstate management frameworks continued to exist since the 1990s despite the rising tensions between Central Asian states. At a local level, Water User Associations (implemented by states) and Water User Groups (implemented by users) have emerged [88], but the main model for water management remains deeply state-centric [89]. Though many authors and institutions promote people-to-people, bottom-up approaches to water management, works on international cooperation, as well as this thesis, aim to show that large-scale, state-induced coordination is also beneficial, and can bring about greater change in the

[84] Teichmann, 'Canals, Cotton, and the Limits of de-Colonization in Soviet Uzbekistan, 1924–1941'.
[85] Fayiah et al., 'A Review of Water–Energy Nexus Trend, Methods, Challenges and Future Prospects'.
[86] Dadabaev, 'Securing Central Asian Frontiers'; Sneddon and Fox, 'Rethinking Transboundary Waters'.
[87] Rakhmatullaev et al., 'Facts and Perspectives of Water Reservoirs in Central Asia'.
[88] Abdullaev et al., 'Water User Groups in Central Asia'.
[89] Abdullaev and Rakhmatullaev, 'Transformation of Water Management in Central Asia'.

politics of the region, as well as solve problems like infrastructure damage or resource distribution.

As such, this section will not dwell on local approaches and will rather give a brief overview of interstate, multi-lateral institutions. Historically, the two major institutions for water management in Central Asia have been the Interstate Commission for Water Coordination (ICWC) and the International Fund for Saving the Aral Sea (IFAS). Both institutions are deeply linked, and exist as references for all water-related matters in Central Asia.

ICWC was created in 1992, based on older coordination initiatives. ICWC is an international governmental institution, commanded by the heads of the different ministries of water and energy of the five Central Asian states. It is both a policy-making and a knowledge-producing institution, with a scientific information centre and the power to make legally binding decisions concerning water management and distribution. In 1997, it was integrated to IFAS.

Though its legal status is vague, IFAS oversees all water-related issues in Central Asia. IFAS's mandate spreads much further than the Aral Sea question and the institution has become a hub for cooperation for all sustainable development matters, both by unifying initiatives regionally, and by searching for scientific, technical and financial cooperation abroad. The leadership changes every several years, and is assumed by one of Central Asia's head of state.

Overall, these institutions have turned out to be successful, maintaining their engagement over the long run, despite several demands from the heads of state to readjust their structures to meet the region's new needs and challenges.

CHAPTER V: ANALYSIS

1. ROGUN DAM

a. Background

The Rogun Hydrological Power Plant, more commonly called Rogun Dam, is located on the Vakhsh River in Tajikistan, one of the main tributaries of the Amu-Darya [90].

This large-scale project was first designed under the Soviet Union, with construction beginning in 1976, and is meant to become the highest dam in the world (around 335m high). However, construction was stopped at the collapse of the Soviet Union and took a long time to resume due to lack of funds, institutional difficulties, and several floods and natural incidents which destroyed part of the dam. Finally, construction was resumed in 2008, and has been continuing sporadically since, with a tentative opening date planned towards 2028 [91].

The construction of Rogun Dam is an important turning point for Central Asia, because it changes the power relations within the Amu-Darya basin, where Uzbekistan is the hydro-hegemon. Indeed, its land size, population and geography meant that it had received the highest water allocation of the basin under the Soviet Union. However, the construction of a large hydropower station upstream changes that dynamic, and virtually gives Tajikistan the power to control water availability in Uzbekistan [92].

Because of this, the announcement of the construction's continuation by the Tajik government in the early 2000s caused tensions between the two countries. In the 2012-2017 period, they became very close to conflict, due to the diametrical opposition of narratives about the dam. In Tajikistan, Rogun Dam was presented as a necessary project for national sovereignty and development, and became a national priority. Meanwhile, in Uzbekistan, the dam was portrayed as an existential threat, and the Amu-Darya was securitised, while threats of political and military intervention arose against Tajikistan [93].

In 2007, Tajikistan called upon the World Bank to conduct a series of assessments to evaluate the feasibility of the Rogun project. The World Bank conducted Techno–Economic and Socio-Environmental Assesments in 2014, which were then updated in 2021. These assessments were

[90] Eshchanov et al., 'Rogun Dam—Path to Energy Independence or Security Threat?'
[91] Menga, 'Building a Nation through a Dam'.
[92] Mirumachi, *Fostering Tajik Hydraulic Development: Examining the Role of Soft Power in the Case of the Rogun Dam*.
[93] Salewicz and Nakayama, 'The Rogun Dam Project'.

reviewed by panels of experts and were presented at five consultative meetings (Riparian Information-Sharing and Consultation Process on the Assessment Studies of a Proposed Rogun Hydropower) between the riparian states of the Amu-Darya: Afghanistan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan, and other stakeholders (for example, Kazakhstan, and the United States).

The key areas of concern were about water availability downstream (for Uzbekistan, Afghanistan, and Turkmenistan), and seismic risks because the dam was built on the Ionaksh fault. In addition, concerns were raised about the relocation of populations in the affected area, some of which were Kyrgyz.

After 2017, tensions subsided. The change of presidency in Uzbekistan after Islam Karimov's death very quickly opened way to diplomatic negotiations about the dam, and several agreements were signed to pose conditions to the construction of Rogun Dam, based on World Bank evaluations, and cooperation between the two countries.

b. SWOT analysis

This analysis is based on a collection of 21 documents, issued from the World Bank (7 documents), the UN (1 document), the Tajik government (5 documents) and the Turkmen government (8 documents). No documents have been found on any official Uzbek website about Rogun Dam, though it is one of the primary affected stakeholders in the project.

The World Bank and UN documents are Panel of Experts conclusions based on the conducted assessments, and the available reports on the riparian meetings (2nd, 4th and 5th meetings). Particular attention was given to the transcription of comments and questions from stakeholders. The Turkmen and Tajik documents are news and reports, as well as transcriptions of speeches made by officials.

The SWOT analysis is compiled in the table below:

Table 3. Rogun Dam SWOT Analysis.

Dimension	Description	Evidence	Impact
Strengths	Data-sharing and monitoring systems	Development of a flood and seismic monitoring system, "whether Rogun is built or not" [94], offers of Kyrgyzstan and Uzbekistan to participate in sharing data and evaluating assessments.	Creation of systems and institutions to monitor the resource and the environment. Cooperation on data gathering and assessment. Independent, regional data-sharing based on work by outside partners.
	Sustainable Development Goals (SDGs) and climate change	Rogun would reduce GHG (greenhouse gas) emissions and would participate in a green energy shift in the region, thus helping to mitigate climate change. According to the World Bank and the UN, it also can impact other SDGs, such as food security, decent work and economic growth.	Strong awareness of climate challenges in the region, positive outlook on HPP green energy potential, if Rogun proves to limit GHG emissions and increase water supply stability in a time of climatic uncertainty.
	Benefits to downstream states	According to the World Bank assessments, Rogun may be paired with Nurek Dam to improve water availability downstream and electricity availability in Tajikistan. Energy may also be exported to the rest of Central Asia.	Shared benefits of the project means greater will to cooperate, if those benefits do end up realising. Increased water and energy supply stability would encourage cooperation on future infrastructure projects.
Weaknesses	Lack of trust between stakeholders	Doubt from partners about the data used in World Bank assessments (old data, lack of transparency of the methods, delay in communication to several parties), and doubts about Tajikistan's capacity to finance a safe, sustainable project within the sensitive timeframe.	Hinderance to cooperation, partners display suspicion towards each other, affecting both the project and the general amount of trust in the region.
	Unsatisfying current water agreements	The agreements on the Amu-Darya don't include Afghanistan nor cover the management of seasonal flows, and are not enforceable. Turkmenistan points out that lack of communication about the HPP project is against international law.	Limits cooperation because it excludes stakeholders, increases uncertainty, and decreases trust due to inadequate legal framing of the project, suggesting that Tajikistan can act without any monitoring and accountability.
Opportunities	Involvement of external partners	Rogun Coordination Group, led by partners like EU, Asian banks, USAID, Saudi Fund, involved in the project, as well as Swiss and Italian companies. EU has launched a $12bn package to support CA development, including Rogun dam.	Opportunity for investment in the region, especially with CA acting as a bloc, thus prompting aid and investment to the entire region in case of the success of projects like Rogun HPP.
	Occasion to develop joint projects	Talks about a joint project between Tajikistan and Uzbekistan on Zarafshon River, inspiration for Kamabarata-HPP project in Kyrgyzstan. Mention of joint financing scheme to enable benefit-sharing and limit the risks of delays in construction.	Success of Rogun Dam may show the need to cooperate on projects, rather than have downstream states tolerate the impacts. Development of cooperation on infrastructure, based on the blueprint appearing for Rogun HPP.
	Occasion to update agreements	Rogun riparian consultations brought up the subject of meeting to readjust water-sharing agreements, to include all stakeholders, and fix existing issues. Idea supported by all stakeholders.	New agreements would enhance cooperation potential of the regional partners and increase trust, institutions and cohesion.

[94] Clausen et al., *Final Report of the Environmental and Social Panel of Experts*. p.9.

Threats	Afghanistan	Absence of Afghanistan in water-sharing agreements since 1990s, though it is a riparian to the Amu-Darya. Has plans to use water from the river in the future, but not party to agreements and often neglected in communication about upstream projects (not invited to 1st riparian meeting).	Incomplete cooperation, because Afghanistan isn't considered as part of the region, but is a riparian state, upstream of Uzbekistan. Risk of conflict heightened by the lack of provisions and relations especially with the current authorities.
	Impact on neighbours	Risks of unpredictable water discharge downstream, impact on Aral Sea. Risks concerning pollution from animal burial sites in inundated areas, and ethnic tensions due to relocation of ethnic Kyrgyz people from the inundated area.	Impact on the Aral Sea as a legal entity would be a symbolic breech of trust between Tajikistan and the rest of CA. Impacting the quantity and quality of water resources of downstream states is also a source of tensions, and may lead to violence, and ethnic conflicts are also a hindrance to cooperation in any domain.
	Uzbek dissent	No mention of Rogun HPP in official Uzbek sources. Lack of proper negotiations, "showdown through notes of protest or military operations" [95]. Many questions in consultations about the legitimacy of the project and Tajikistan's capacity at keeping promises.	Uzbekistan is the most virulent opponent to Rogun HPP, as well as the most influential state politically and economically on the Amu-Darya basin. An absence of serious negotiations when the project is ongoing is a great risk for regional stability.

c. Strengths and opportunities

The strengths and opportunities of the Rogun Dam project show that it does have potential for cooperation on the project itself, on environmental issues, and on other issues such as infrastructure, energy, trade and regionalism.

Indeed, Rogun Dam, through the technical assessments of the World Bank, has enabled the creation of several forums where all the stakeholders of the project could meet and discuss technical, social or legal questions. These technical assessments also improved the general communication and transparency surrounding the project, which in turn increases trust and confidence between partners. This also gives the opportunity to discuss the creation of warning systems, the possibility of data-sharing on geological and hydrological issues, and generally a cohesive regional monitoring of seismic and hydrological risks.

Furthermore, Rogun Dam is a central point of conversation about climate change and green energy in the region. Many questions were raised during the riparian consultations about the potential to reduce GHG emissions and concern for climate change in Tajikistan also translates into interest for sustainability and other SDGs, such as economic development and employment. This may therefore lead to cooperation in economic sectors and, as mentioned by the Tajik

[95] nCa, 'Integration of Central Asia – Way to Solve Regional Water and Energy Problems'.

president Emomali Rahmon, Rogun Dam may facilitate the creation of businesses around it and offer jobs to Tajiks as well as other nationalities, and may help attract investment from partners like the EU or the Asian Development Bank who are concerned about climate change mitigation[96].

The interest of these partners in Central Asia gives development opportunities, and strengthens the need for regionalism and a C5+1 approach, to increase investment potential. The EU-Central Asian summit in 2025 displays the interest of the EU in Central Asian climate mitigation, and specifically in projects like Rogun or Kambar-ata-1 HPP, which were extensively mentioned during the summit. This proves to be a powerful argument for environmental cooperation in Central Asia, as well as for economic cooperation, to facilitate external investment and partnerships.

Another strength of the project is the foreseen benefits of the dam on downstream states if operated jointly with other infrastructures. An operation together with Nurek dam would, according to World Bank estimates, enable water and energy supply reliability during the summer and the winter, respectively, for Tajikistan and for the downstream states. Though Nurek dam is also operated by Tajikistan, such considerations may encourage cooperation on other infrastructure projects, both on the Vakhsh river, and on other Central Asian rivers, to maximise the use of available resources. In this way, the understanding of the water resource as a CPR is essential to anticipate the threats to the project, but also to see why cooperation is necessary to maximise the use of water.

Indeed, if we look again at the CPR management framework, we can identify demands from stakeholders for:

- Coherence:
    - Compatible goals between partners: energy generation and water availability;
    - Understanding of risks and benefits: numerous questions about the feasibility of the dam and the measures taken to mitigate risks;
    - Appropriate resources: questions about Tajikistan's capacity to finance the dam and exploration of alternatives.
- Accountability:

[96] 'Commissioning Ceremony of the Second Unit of the Rogun Hydropower Plant – Ministry of Energy and Water Resources of the Republic of Tajikistan'.

    - Surveillance mechanism: suggestion from Kazakhstan to develop an online hydrologic monitoring system;
    - Conflict resolution mechanisms: note from the World Bank on the need to develop such systems in future agreements.
- Independence:
    - Multi-scale organisation: Demand from Uzbekistan and Kyrgyzstan to seek the approval of the project from civil society in an open, free and transparent manner;
    - Transparency: demand for further information on the assessments.
- Equality:
    - Participation of all users in rule-making: Afghanistan complains about having not been convened to the first riparian meeting, and not having taken part in the project assessment since its offset, contrary to Kazakhstan or Kyrgyzstan for example, who were aware of the project for several years.
- In terms of motivation, the different stakeholders are searching for ways to cooperate, motivated by the understanding of water in the basin as a CPR, the need to manage it collectively, and awareness of the impact of climate change on the resource. A true willingness to cooperate on substantial issues appears only in the second round of assessments, specifically on financial and monitoring issues.

This discussion of water as a CPR also raises the possibility of sharing both benefits and costs, and therefore developing a regional scheme to fund the project and make it as safe and as beneficial as possible for Tajikistan and downstream states. This could become a blueprint for future infrastructure, energy or connectivity projects. As a result, Rogun Dam also encourages the reinstatement of joint energy infrastructure, to increase reliability of power. One such project is for example CASA-1000, which thanks to infrastructure such as Rogun Dam would limit power cuts and provide green energy throughout and beyond the region.

Finally, discussions around Rogun Dam have shown the need to update water-sharing agreements, adapting them to the current context of climate change and including energy generation and Afghanistan within the regional framework. This notion was fully agreed to by all parties of the 2014 consultations, and the same will remains in 2021 according to the World Bank, and to the Tajik and Turkmen governments. If negotiations do take place to improve the current legal agreements on water, steps may also be taken to negotiate other agreements

between Central Asian countries, concerning economic union, ethnic issues or foreign policy, thus increasing overall cooperation within the region.

d. Weaknesses and threats

On the other hand, Rogun Dam has severe limitations. The riparian consultations displayed a heavy lack of trust between partners, regarding data presented by the World Bank and Tajikistan's capacity to act in accordance with that data. Indeed, the nature of the project, spread out over several decades, past and future, creates limitations concerning data reliability. Some of the data was deemed too old, collected under the Soviet Union, and without regard to modern safety regulations. Doubts were also raised on Tajikistan's economic, labour, and infrastructural capacity to maintain the dam to security standards, and to deploy sufficient prevention measures against flooding and seismic risks. Throughout the conversation, risks linked to the Ionaksh fault were frequently brought up, and the reassurances given by the World Bank and Tajik officials were routinely dismissed by other representatives. A similar situation appeared concerning water availability downstream, and though the solution of a joint operation of Rogun and Nurek dams were convincing for Kyrgyz representatives, representatives of the downstream countries continued to question the legitimacy of the dam.

Another point of tension is the impact of Rogun Dam on the Aral Sea, which remains the flagship of Central Asian commitment to sustainable water management. A diminution of the Amu-Darya's flow towards the Aral Sea due to Rogun Dam would have political consequences against Tajikistan, who would therefore put in peril the economies of downstream states as well as the Aral Sea as a symbol of Central Asian resilience [97].

After the riparian meetings in 2014, the World Bank led another series of assessments in2021, mentioning that greater cooperation seemed to exist, with fewer questions about the legitimacy of Rogun's existence. By then, the sensitive timing of the project seemed to be the biggest issue. Indeed, as pointed out in the first assessments, stopping the construction after initial diversion of the river for lack of funds would create flood and seismic risks. Financing was therefore the biggest challenge by 2021. However, contrary to 2014, we have no first hand opinion of Uzbek, Turkmen or Afghan representatives, and World Bank conclusions may therefore be incomplete.

Though change in leadership in Uzbekistan changed attitudes towards Rogun Dam, it remains that no documents about the project have been found on any Uzbek governmental site for this

[97] Niyetbek, 'Kazakhstan's Proactive Measures in Addressing the Aral Sea Crisis as a Platform for Enhanced International Representation and Media Engagement'.

analysis, and there are no bilateral negotiations about the project between Uzbekistan and Tajikistan. When looking at the questions asked in the riparian consultations, we see that Uzbek representatives highly doubted both the feasibility and the legitimacy of the project. Even during the 5th consultation, before which dozens of technical questions had already been raised, Uzbek officials could be quoted saying the following:

"Downstream countries [should] obtain convincing guarantees that Tajikistan will perform its obligations in the future despite the fact that Tajik power producers will have a practically unrestricted opportunity to control the flow with the Rogun HPP if it is constructed." [98]

"There is no guarantee that Tajikistan will continue to supply water since the current agreement is outdated by Rogun. The fact that Tajikistan is not part of all trans boundary water agreements does not give confidence." [99]

The power imbalance caused by Rogun Dam and Uzbekistan's downstream position is concerning and shows high potential for conflict for water resources. Added to this, Turkmen officials point out that projects like CASA-1000, with exports of electricity from Rogun Dam to Pakistan and Afghanistan would come into competition with the Uzbekistan's export to these countries [100].

Another concern lies in the absence of Afghanistan in water agreements:

1. The absence of Afghanistan reduces confidence and transparency between stakeholders because they are an unequal party to consultations;
2. Afghanistan has since the 2010s made clear that the country planned to use its water allocations fully in the future;
3. The Taliban taking power in 2021 has led to a termination of official relations between Afghan and Central Asian governments, and no further agreements can be struck because the Taliban government is not recognised internationally, making it impossible for Central Asian states to recognise Afghanistan and negotiate about water [101].

[98] Europe and Central Asia Region World Bank, *5th Riparian Information-Sharing and Consultation Process on the Assessment Studies of a Proposed Rogun Hydropower Project*. p.30
[99] Ibid. p.46
[100] nCa, 'Integration of Central Asia – Way to Solve Regional Water and Energy Problems'.
[101] Vilks, 'The Taliban Movement as a Challenge to Security and Political Order in Central Asia'.

This situation is a source of tensions, both in the context of Rogun Dam, as Afghanistan is downstream from Tajikistan, and in the broader water context of Central Asia, since it is upstream from Uzbekistan and Turkmenistan.

e. Cooperation potential of Rogun Dam

This analysis overall suggests that Rogun Dam does have potential to trigger cooperation in environmental issues as well as on a diversity of other issues. When looking back at the hypotheses of this research, we see that:

(a) The framing of water as a CPR by stakeholders enabled the push for a monitoring system (accountability) and the development of conflict resolution mechanisms in future agreements, which would lead to greater cohesion and trust in the region. Furthermore, a CPR framing supposes the recognition of benefits and costs for upstream and downstream countries, leading to discussions of cooperation on infrastructure, energy, and financing.

(b) Technical expertise triggered the opportunity for consultations and discussions, thus raising questions of new regional agreements, and the development of monitoring, data-sharing and warning systems.

(c) Climate change is a reason for environmental cooperation to evolve into other types of cooperation, notably on infrastructure projects to supply green energy, and on cooperation to attract new investment into the region.

What we see is therefore that environmental cooperation around Rogun HPP would enable cooperation on infrastructure, data-sharing, energy, financing, investment, and legal and political regional cohesion.

Hypothesis (d) suggested that the greater political power of downstream states (here, Uzbekistan), would also enable to transform environmental cooperation into regional cooperation. However, the rivalry between Uzbekistan and Tajikistan has not been overcome in the case of Rogun Dam, and it seems that the project has made it worse. The possibility of green energy export from Tajikistan to other countries may intensify rivalry with Uzbekistan. In addition, Uzbekistan's relative power enables the country to issue threats towards Tajikistan and limits the possibility for future cooperation on the issue.

2. KAMBAR-ATA-1 HYDROELECTRIC POWER PLANT

a. Background

Along with Rogun Dam, Kambar-ata-1 HPP is part of Central Asia's largest infrastructure projects. Built on the Naryn river which crosses Kyrgyzstan and Uzbekistan and flows into the Syr-Daria in Kazakhstan, the project is being built upstream of Kambar-ata-2 HPP, which already supplies energy to Kyrgyzstan. Kambara-ata-1 HPP is the largest infrastructure on the Naryn river, and is planned to be operational in 2028, while Kambara-ata-2's first generator has been operational since 2010[102].

Like Rogun Dam, Kambara-ata-1 HPP is a project inherited from Soviet plans, which never came to fruition before Kyrgyzstan's independence in 1991. Renewed interest in hydropower in the region, especially in the mountainous upstream states, comes in response to the post-independence dynamics of water allocations. As Tajikistan and Kyrgyzstan remain the two poorest countries in the region with little space for agriculture and few natural resources, they are looking for ways to use the water passing through their territory to provide a more stable energy supply to their population, but also generate income by exporting green energy to other countries, through initiatives like CASA-1000[103].

Many issues which were raised for Rogun Dam remain in the case of Kambar-ata-1 HPP. The potential strain on the Syr-Darya and the impact on the Aral Sea are the most pressing issues raised in negotiations. However, several differences make Kambar-ata-1 distinct from Rogun. Primarily, the situation of the Syr-Darya is not the same as the situation of the Amu-Darya. The flow of the Syr-Darya is much lower, and less of its waters are used for irrigation, making it less existentially important for downstream states. In Uzbekistan, most resources come from the Amu-Darya while for Kazakhstan, the Syr-Darya only crosses the southern region of Kyzylorda[104].

This said, the Syr-Darya remains a source of tensions between Uzbekistan and Kyrgyzstan. Firstly, water-sharing is complicated in the Ferghana Valley, where border disputes exist between Uzbekistan, Kyrgyzstan and Tajikistan and where conflict broke out in 2021. The infrastructure of the valley is inadequate, and makes the Uzbek enclaves, which are both

[102] Duzdaban, 'WATER ISSUE IN CENTRAL ASIA'.
[103] Aripov, 'The Role of Hydropower in Water-Energy Dynamics of Aral Sea Basin'.
[104] Menga, 'REGIONAL WATER DIALOGUE IN A CHANGING POLITICAL ENVIRONMENT'.

upstream and downstream of Tajikistan in the valley due to its convoluted borders, particularly vulnerable to how water is managed in both Tajikistan and Kyrgyzstan [105].

Furthermore, Kyrgyzstan's need for energy remains a point of contention for Uzbekistan. As the Soviet quotas and centralised organisation collapsed, Kyrgyzstan soon found itself rich in water but poor in energy, dependent on Uzbek and Kazakh hydrocarbons to satisfy energy demand. Due to tense relations with Uzbekistan, Kyrgyzstan quickly had to use hydropower to counter shortages, causing severe floods in Uzbekistan as water was released [106].

To reduce these tensions, several agreements have been signed, both bilaterally and trilaterally. Bilaterally, Kazakhstan and Kyrgyzstan cooperate since 2000 on several water management facilities, owned and operated by Kyrgyzstan but financed and monitored by both countries. Uzbekistan and Kyrgyzstan have similar arrangements for infrastructure in the Ferghana Valley. Following the conflict in 2021-2022, most of the infrastructure has however passed in the hands of Uzbekistan, which compensated Kyrgyzstan by allowing free use of reservoir waters to Kyrgyz citizens and by handing over agricultural land. Now, Kambar-ata-1 HPP is the subject of a tri-lateral agreement between Kazakhstan, Kyrgyzstan and Uzbekistan. In 2023, it was decided that the HPP would be financed, built and managed jointly, following the 1998 Environmental Cooperation Agreement between the three countries [107].

b. SWOT Analysis

This analysis is based on a collection of 34 documents, issued from the World Bank (7 documents), the Kazakh government (6 documents), the Kyrgyz government (9 documents), the Turkmen government (9 documents) and the Uzbek government (3 documents), .

The World Bank documents concerned feasibility studies and environmental and social evaluations of Kambar-ata-1 HPP and the situation in Kyrgyzstan. The Uzbek and Turkmen documents concerned the project and its impact on the region at large. The Kyrgyz documents mostly focused on the national benefits of the project. The Kazakh documents emphasised the reception of the project internationally, and mentions of it in forums and conferences with partners like the EU, the World Bank, and the Eurasian Development Bank (EDB).

The SWOT analysis is compiled in the table below:

[105] Roberts, 'Rival Eco-Anxieties'.
[106] Zhiltsov et al., *Water Resources in Central Asia*.
[107] Ziganshina, 'Water Infrastructure in Central Asia'.

Table 4. Kambar-Ata-1 HPP SWOT Analysis.

Dimension	Description	Evidence	Impact
Strengths	Greener regional energy mix	Export of hydroelectricity to the region through unified power grids and markets, Dalka-Almaty line. Regional energy security and reliability, less GHG emissions and import of fossil fuels. Opportunity for businesses to use green energy.	Incentive for states to cooperate to meet SDGs and Nationally Determined Contributions (NDCs). Opportunity for investment in the region, further encouraging cooperation on energy, infrastructure and connectivity issues.
	Integration of water and energy	Restoration of water-energy barter system. Simultaneous mentions of water and energy in conferences and within institutions, Water and Energy Consortium. Joint management with Kambara-ata-2 HPP and Toktogul HPP stabilises water flows and energy supply.	Makes cooperation on environmental and energy questions more cohesive, encourages research and discussions about water and energy, and puts the question of an energy market and connectivity on the table. Increases trust and willingness to cooperate between upstream and downstream because all interests are considered.
	Maturing regional framework of cooperation	Partnerships with neighbours within the region for infrastructure projects instead of Russia, development funds, shared environmental and economic concerns, legal and institutional frameworks. Trust and coordination between partner countries.	Evolution in the past 20 years of regional cooperation from bilateral and extra-regional to multilateral and intra-regional. Strong support from institutions, creation of new agreements and frameworks to regulate environmental cooperation, also useful to other sectors.
Weaknesses	Environmental impacts	Downstream water flow remains uncertain. High risk of pollution and ecosystem degradation.	Mechanisms put in place to increase trust and accountability but environmental risks could impact cooperation on current and future projects.
	Kyrgyz resilience and capacity	Kyrgyz economy is still fragile and the implementation of the project may be impacted. High debts and deficits in the Kyrgyz energy sector.	Potential for a power disequilibrium with more stable Uzbekistan and Kazakhstan, who together own 66% of Kambar-ata-1 HPP.
Opportunities	Green diplomacy flagship	Kambar-ata-1 HPP constantly cited in international forums (EU, UAE…) as the primary Central Asian environmental project along with the Aral Sea restoration. Applauded and invested in by EU and World Bank as a priority project for sustainability.	Great interest for Kazakhstan, recognition on the international scene. Incentive for Central Asia to continue working on multilateral regional projects, which are seen very positively by the international community.
	World Bank involvement	World Bank brings expertise and financing. Attracts other partners like EDB, European banks and companies.	Kambara-ata-1 HPP displays the potential of environmental projects to attract investment in the region, encouraging further cooperation.
	Diversification opportunities	Integration to CASA-1000, possibility of export to China. Gives space to develop less efficient green energies like solar and wind power. Energy available for greater digitalisation.	Energy and water security gives the possibility for the region to meet SDGs and improve economic development in different sectors. This requires cooperation to ensure overall security in the region and limit disparities.
Threats	Climate change	Glacier retreats and water cycle disruptions will affect water flows and make the operation of HPPs more complex and inefficient.	Even with efficient infrastructure, reliance on water will increase uncertainty and potential for conflict in the future due to shortages for agriculture, energy generation, etc.
	Remaining tensions	Border tensions and infrastructure issues remain between Kyrgyzstan and Uzbekistan. Turkmenistan's energy system operates parallel to Iran and not to Central Asia, making linkage more difficult.	Assuaged tensions could return if regional conditions worsen due to climate change and population growth, leading to potential conflict. Some obstacles to integration remain, and could divide the region further in the future.

c. Strengths and opportunities

Overall, Kambar-ata-1 HPP shows high potential for cooperation between states, both in the environmental sphere and in other sectors.

Firstly, the restoration of a form of water-energy barter system is beneficial for overall trust in the region, specifically between upstream and downstream states. The possibility for states to benefit from water resources outside of agriculture contributes to reduce the power imbalance which contributed to tensions.

Furthermore, this system enables the integration of water and energy along a water-energy nexus, often promoted by upstream states, and beneficial to downstream states. The cohesion of water and energy is beneficial to approach the region's resources sustainably and promotes long-term cooperation. The resources are treated as CPR – reliance on each other through the barter system increases the rise of accountability mechanisms and equality of the distribution of risks and benefits, while the creation of a regional energy market motivates partners to cooperate to have common goals.

Kambar-ata-1 HPP displays the strengthening of regionalism in Central Asia over the past decade. First, the evolution of the project's financing is significant in this regard. Indeed, while Kyrgyzstan struck a deal with Russia to help finance the project in the early 2000s, this partnership was revoked in 2016, giving space for a partnership with the EDB in 2017, and a move towards a joint financing and management with Kazakhstan and Uzbekistan in the early 2020s, with financing beginning in 2025. Russia remains a member of EDB, but the shift from a Russian-Kyrgyz partnership to a joint project with the Eurasian institution enabled the involvement of regional actors into the project, since Kazakhstan and Tajikistan are members, thus testifying of a move towards regionalism within Central Asia.

Second, Kambar-ata-1 HPP has become a flagship argument in Central Asian diplomacy and has been especially mobilised by Kazakhstan as a testimony of the progress of sustainability, green energy and cooperation in the region. Indeed, Kambar-ata-1 HPP, like Rogun Dam, has been cited as a priority of the World Bank and the EU for endeavours in Central Asia, due to the potential these infrastructure projects have for the green energy sector of the region. Rogun and Kambar-ata-1 are indeed predicted to increase the productivity of the sector and limit GHG emissions by several millions tCO2eq every year. They would also allow for the development of different forms of renewable energy such as solar and wind power, which are less productive but can be implemented if energy security is ensured by large HPPs. These other forms of

energy are of interest to investors in the UAE or Saudi Arabia, who could expand their influence in the region.

More than Rogun, Kambar-ata-1 HPP also displays the potential for cooperation and joint ventures in the region. The use of the project in Kazakh diplomacy increases the confidence of partners in the competency of Central Asian states to develop such projects and financing schemes, and gives reassurances concerning regional stability. Throughout its presidency of IFAS, Kazakhstan has extensively promoted the project and has used it to show its commitment to SGDs and large infrastructure projects to strike partnerships with European companies and governments, as well as the European Investment Bank (EIB) and the World Bank. Kambar-ata-1 HPP is often presented alongside other flagship projects like the China-Kyrgyzstan-Uzbekistan railway, the Trans-Caspian Transport Corridor or digitalisation projects, which encourages cooperation in a large array of sectors.

Through the involvement of Kazakhstan, increasingly solidifying its position as a hegemon in the region, Kambar-ata-1 HPP therefore displays the opportunity which environmental projects represent to attract interest to Central Asia and therefore encourages states to take part in more joint projects and strengthen regionalism, which is seen positively by foreign partners.

d. Weaknesses and threats

Despite the overall encouraging picture of regional cooperation painted by the case of Kambar-ata-1 HPP, the project still highlights one of the most important threats to cooperation in Central Asia. Climate change remains a concern for regional stability, water and energy security, and the future of infrastructure projects such as hydropower generation.

Indeed, Kambar-ata-1 HPP increases the reliance of the region on water, and though this use of the resource does not deplete it on the long-run, hydropower generation will be affected by climate change. Precipitation regimes will also be affected in the immediate future due to the desertification of the Aral Sea basin (ASB) and land and water use changes downstream, which have an impact on the climate of the entire region [108].

Less water in the Naryn river will necessarily impact Kambar-ata-1 HPP, and all the rest of the power generation infrastructure in Kyrgyzstan. Most directly, less water flow from the Naryn river will imply longer delays to fill up the reservoirs and therefore less flexibility for power generation. In addition, the decrease of water flow downstream of the Naryn's HPPs might put

[108] Hamududu and Killingtveit, 'Assessing Climate Change Impacts on Global Hydropower'.

in question their legitimacy, as tensions may emerge with downstream countries for whom water availability will necessary decrease.

This is an important risk for the region. First, reliance on HPPs for power generation in Kyrgyzstan and in the region via CASA-1000 and the possibility of an integrated regional electricity market makes energy security more vulnerable as climate change progresses and river flows decrease. Second, exports from Kambar-ata-1 HPP are projected to make up a significant part of Kyrgyzstan's economy. A reduction in generation capacity will therefore have an impact on the country's stability and resilience, especially as energy demand increases. Finally, power generation constitutes a bargaining chip for Kyrgyzstan in zones of tension such as Ferghana valley and the decrease in this capacity may put peace-building efforts in jeopardy and spark up past and present tensions in the region as a whole.

e. Cooperation potential of Kambar-ata-1 HPP

Overall, Kambar-ata-1 HPP remains a convincing case for regional cooperation, and promotes it in several ways:

(a) Here, water continues to be treated as a CPR and is integrated into a water-energy nexus. Hydropower generation is a sustainable use of water because it does not deplete the resource, and its integration into a water-energy barter system increases trust between partners and motivation to cooperate, shares risks and benefits among countries and improves the coherence between the goals of stakeholders;

(b) In this case, technical expertise involved in the development of the project does not play much role in increasing cooperation. However, it does enable the involvement of the World Bank and panels of experts on environmental and social impacts, which increases confidence in the feasibility of the project and expands trust of regional and foreign partners on its possible consequences;

(c) Though climate change appears as a threat for cooperation in the long-run, its awareness also improves relations between states. It encourages joint resource management and the development of green energy generation and therefore also attracts investments from partners concerned with sustainability, green energy, connectivity and infrastructure. Because regional and cooperative projects are also attractive to partners and increase their confidence in regional security and stability, Central Asian states are encouraged to further cooperate and show the strength of their relations, thus overall increasing

regionalism and the possibility for cooperation in sectors beyond environmental projects;

(d) Kazakhstan and Uzbekistan, both more powerful than Kyrgyzstan, are downstream from Kambar-ata-1 HPP. Their involvement in the project comes from their concern for their own water availability and has enabled the project to gain scope, influence, and interest from foreign partners. This joint project has been beneficial for both Kyrgyzstan, who receives energy security and economic opportunities, and Uzbekistan and Kazakhstan, who can retain power on water flow. They can also use the project for green diplomacy, which benefits the region as a whole, since it therefore receives attentions from foreign investments. Kazakhstan's and Uzbekistan's involvement in the project therefore displays the benefits of cooperation on environmental projects, as well as in other sectors of interest for the region and for its partners.

3. IFAS

a. Background

The Aral Sea lost 90% of its volume between the 1960s and today[109]. The stringent environmental degradation of the Aral Sea was due to the diversion of water from the Amu-Darya and Syr-Darya for agricultural purposes, especially the irrigation of cotton fields in Uzbekistan and Kazakhstan[110]. The desiccation of the Aral Sea had many consequences on the climate of the region (intensification of the desertification of the basin)[111], and on local communities (loss of livelihood, pollution-caused health issues)[112].

In response to the mismanagement of water under Soviet rule, the Central Asian states established, upon independence, the International Fund for Saving the Aral Sea (IFAS). The goal was to develop a scientific, political and social will to mitigate the consequences of the Aral Sea disaster. The institution however extended further than this initial goal. As the hopes of saving the Aral Sea faded, IFAS turned instead to promoting regional cooperation on water

[109] Micklin, 'The Past, Present, and Future Aral Sea'.
[110] Feshbach and Friendly, *Ecocide in the USSR: Health and Nature Under Siege*.
[111] Saiko, 'Irrigation Expansion and Dynamics of Desertification in the Circum-Aral Region of Central Asia'.
[112] Erdinger, 'The Aral Sea Disaster - Human Biomonitoring of Hg, As, HCB, DDE, and PCBs in Children Living in Aralsk and Akchi, Kazakhstan'.

distribution, environmental research and international partnerships with the World Bank, the UN or the AFD (French Development Agency) on sustainable development goals [113].

IFAS is therefore a key institution, and funnels a lot of foreign investment into the region. Because of the impacts of the Aral Sea catastrophe on the international community, IFAS has played a role in worldwide water diplomacy and has the observer status in the UN since 2008 [114].

Even throughout the region's unstable period, IFAS remained active to promote sustainable management of water resources, with the chairmanship of the fund changing every few years between Kazakhstan, Uzbekistan, Tajikistan and Turkmenistan and the holding of summits between all five member states.

IFAS nonetheless faces a lot of criticism on its organisation and the power imbalances on which it is structured. Through the presidency system, the state at the head of IFAS typically forwards its own interests, sometimes to the detriment of other states. Similarly, the power imbalance of the region, with powerful and stable downstream states, and more unstable upstream states, is reproduced in the fund and impacts its potential of cohesive action, especially in the states with less power like Kyrgyzstan and Tajikistan [115]. Notably, Kyrgyzstan never applied for chairmanship while appointing no representatives to the Executive Council (EC-IFAS) [116]. After pushing for reforms, Kyrgyzstan in fact suspended its involvement in the fund in 2016.

IFAS also faces many structural challenges. The rotation of the presidency currently implies high relocation costs and a lot of time constraints. In addition, the fund lacks budget and appropriate measures to enforce allocation of the budget to sustainable development goals, thus making the fund's goals dependent on political will. Most of the budget, besides, relies on donors an and is therefore conditioned by those donors' interests. Finally, IFAS is also unstable institutionally, due for example to ICWC's wish for independence or the fund's fairly unclear legal status [117].

Over the years, IFAS has still conducted a number of initiatives such as the four Aral Sea Basin Programs (ASBP), which have taken place since 1995 and are planned for the future. Through these programs, some infrastructure was repaired, improvements were made to increase water-

[113] Zhanalieva, 'Hydro-hegemony of the International Fund for Saving the Aral Sea (Ifas) in Central Asia'.
[114] Janusz-Pawletta, 'Current Legal Challenges to Institutional Governance of Transboundary Water Resources in Central Asia and Joint Management Arrangements'.
[115] Meyer, *Regional Institutional Arrangements Advancing Water, Energy and Food Security in Central Asia*.
[116] Dairova, 'Linkages Between Domestic Water Politics and Foreign Water Policy in Kyrgyzstan'.
[117] Meyer, *Regional Institutional Arrangements Advancing Water, Energy and Food Security in Central Asia*.

sharing measures, and cultural and social initiatives were put in place both in the ASB and in the wider region [118].

Overall, this review shows that IFAS remains a strong symbol of Central Asian cooperation on water resources, with the Aral Sea at the centre of its preoccupations. However, the fund requires deep reform to improve its efficiency and make it possible to foster regional cooperation within its institutional framework.

b. SWOT Analysis

This analysis is based on a collection of 36 documents, issued from the World Bank (8 documents), the Kazakh government (7 documents), the Kyrgyz government (1 document), the Tajik government (4 documents), the Turkmen government (12 documents) and the Uzbek government (4 documents).

Most of these documents concerned past or upcoming meetings, conferences and summits related to IFAS, with several reports and speeches given at those meetings. The World Bank documents focus on the Regional Working Group (RWG) committed to reforming the institutional, legal and logistic aspects of IFAS, and on grants offered by the World Bank for the Central Asia Hydrometeorology Modernization Project, implemented by EC-IFAS, or to the Regional Environmental Centre for Central Asia (CAREC).

The SWOT analysis is compiled in the table below:

[118] Sehring and Ibatullin, 'Prolonging or Resolving Water Conflicts in Central Asia?'

Table 5. International Fund for Saving the Aral Sea SWOT Analysis.

Dimension	Description	Evidence	Impact
Strengths	IFAS as a platform for cooperation	Conferences and summits are an occasion for countries to talk to each other, both as a region, and bilaterally, and to address other topics on the sidelines (gender, education, connectivity…). IFAS also enables the creation of new institutions like CAREC or ICWC which participate in knowledge-gathering.	IFAS limited tensions over water issues and prevented conflicts to erupt in the region. The frequent meetings of heads of states, under the auspices of IFAS, enables continued contact between states, and gives opportunity to advance cooperation on many issues, thus improving the overall cohesion of the region.
	IFAS as an international body	IFAS enabled the integration of CA and the ASB into the global climate and international law systems, and interacts with many international organisations like the UN, WB, AFD, etc. acting as the implementation agent in the region. IFAS also offers the chance to the heads of state to display initiatives internationally, and has permitted the introduction of the concept of sustainability into CA.	The integration of CA as a region to a global system strengthens the region as a whole, and creates incentives for all five states to work together and present a unified front to international institutions and partners, to attract investment and outside cooperation on topics like sustainability and climate change, but also connectivity, energy or industry.
	Successful reform processes	Reforms to improve the efficiency of IFAS are underway through the RWG, aiming to improve transparency, data-collecting and sharing, and expand the issues it can act on, specifically hydropower, as well as compensatory mechanisms for the use of water and energy resources, based on the Naryn-Syrdarya river basin mechanisms.	The RWG aims to have IFAS respond better to all member states' goals and needs, while increasing efficiency, transparency and accountability. This will improve relations within the institution and will encourage Kyrgyzstan to return.
Weaknesses	Inequality between states	States do not have the same level of commitment in the fund, which is dominated by Kazakhstan and Uzbekistan. Kyrgyzstan has grievances about the mismatch between contributions and benefits, since projects have had no impact on its territory. Many bilateral agreements are also struck, outside of IFAS, even on issues concerning more than two parties.	The power discrepancies within IFAS are the main concern of the organisation, and greatly limit its efficiency. It increases distrust and resentment between partners, as well as makes cooperation more costly for states with less power.
	Status of IFAS	Because IFAS is not a state in itself, its legal status is uncertain and raises issues. For example, the process for requesting funds from the WB is hindered by its status, and it suffers from some constraints such as the absence of a microcredit license, making it difficult to implement some projects. Furthermore, the mandates of IFAS sometimes come into conflict with sovereignty, which states are not willing to compromise on, thus reducing its efficiency	The issue of sovereignty limits the possibility of cooperation in the framework of IFAS. Combined to the inequalities within the fund, states may ultimately prefer interacting outside the fund's framework. Other legal constraints make cooperation slow and inefficient, further limiting incentives to cooperate under IFAS.
	Organisational constraints	Logistical issues like the repartition of offices in different regions often hinders efficient IFAS operations. Projects are often handled nationally rather than regionally, with no guidelines for their implementation or accountability mechanisms.	Similarly as above, organisational constraints limit the efficiency of IFAS. In addition, the dynamics of presidency and the location of the IFAS offices may exacerbate the unequal power distribution within the fund.

Opportunities	Development of new opportunities	Through IFAS and its reforms the member states can consider developing hydropower at a regional scale, and deploy innovative monitoring mechanisms. Other opportunities arise through the work of IFAS, such as exploiting the surface of the dried-up Aral Sea to grow Artemia cysts [119], or mine rare materials, making the ASB a zone of environmental innovation and technology.	As IFAS diversifies its concerns and activities, funding and partnerships can more easily be brought to the region, thus encouraging Central Asian states to cooperate on economic issues, industry, and connectivity, to share the benefits of economic development in the ASB.
	Education and science cooperation	Because the Aral Sea catastrophe is so multi-faceted, the development of IFAS research activities can lead to cooperation in a great diversity of fields (figure 9). Furthermore, partnerships are being struck with foreign universities, thus promoting education in the region, and enabling the growth of cooperation in the academic and educational sectors.	These partnerships may foster academic cooperation between partners, thus increasing exchange of information, exchanges between universities and research institutes, and improve cohesion in the region.
	Involvement of foreign partners	IFAS attracts many foreign donors, but also seeks out the expertise of Russia, Germany, or the UAE for technology and innovation. The RWG for the reform of IFAS conducted a visit to the MRC to draw inspiration from the management of the Mekong. Finally, Azerbaijan is increasingly involved in IFAS, suggesting the possibility of greater cooperation with the Caucasus.	As seen above, the involvement of foreign partners increases the incentive for the Central Asian states to act together as a unified region, thus making overall cooperation increase. The use of expertise from other institutions may increase the level of trust of the states in IFAS and make cooperation easier.
Threats	Change of conditions	Climate change, population growth, land use change and increased water consumption in Afghanistan threaten the activities of IFAS.	The growing uncertainty and difficult conditions in the future of Central Asia may increase the risk of conflict, and IFAS is currently not equipped to limit conflict in the current conditions.
	Contradictory demands	Member states have different visions for the fund's reforms. For example, Kazakhstan calls for giving more power to EC-IFAS while Kyrgyzstan demands the opposite.	Disagreements on IFAS reforms may lead the reforms to drag on, or for tensions to emerge, thus heightening the risk of states "freezing" their cooperation with the fund again.

c. Strengths and opportunities

This analysis highlights the role of IFAS in fostering cooperation on a great variety of issues in Central Asia. IFAS indeed acts as a platform for discussion and partnership on trade, education, connectivity, culture, gender issues, youth, or science.

This process of cooperation is enabled by IFAS primarily through frequent summits and conferences. On the sidelines of these summits, several cooperation mechanisms take place, on issues not surrounding water management or even the environment:

- Many bilateral meetings take place during IFAS summits;

[119] Artemia cysts are eggs produced by brine shrimp, which are used in aquaculture to feed farmed fish. They can be stored indefinitely and are therefore very lucrative.

- Alongside IFAS summits, meetings on other issues can be organised. For example, during the 2023 IFAS summit in Dushanbe, Tajikistan organised forums on trade, transport, women leaders of Central Asia, and higher education institutions, as well as art exhibitions and an exhibition of national products [120];
- IFAS organises training and workshops to prepare participants to UN conferences on water, with a focus on inviting youth and women to participate [121].

These initiatives show the capacity of IFAS as a unifying forum which acts as an opportunity for Central Asian states to talk to each other, thus not only keeping a connection alive and current for all parties, but also giving a chance for states to foster trust and connection on diverse topics and challenges, through bilateral and multilateral diplomacy.

Furthermore, IFAS has acted as a trigger for a broad range of education-related initiatives and opportunities. For instance, IFAS struck partnerships with education institutions such as the IHE Delft Institute for Water Education, hosted the creation of a distance-learning system, and supported the involvement of students and young workers in the ASBPs. As mentioned by the Uzbek Agency of IFAS, education and research on the Aral Sea catastrophe and its consequences is inherently interdisciplinary, and therefore implies cooperation on a large array of topics, both in environmental science, sustainability, engineering, gender studies, tourism, education or economics (Figure 9).

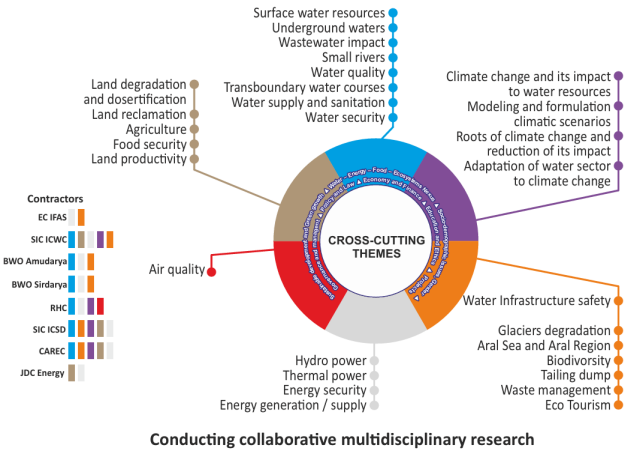

Figure 9. Areas of cooperation in research on the Aral Sea Basin [122].

[120] nCa, 'Tajikistan Starts Preparing for the September Summits of the Heads of Central Asian States and IFAS'.
[121] Central Asia Water & Energy Program, *Regional Preparatory Workshop for UN 2023 Water Conference*.
[122] Sokolov et al., *25 Years of the Activities of the International Fund for Saving the Aral Sea and New Impulses for Development of the Aral Sea Region*.

In addition, IFAS and its ongoing reforms displays a movement towards the sustainable management of water resources as a CPR. As before, we can look at the CPR framework to see how the IFAS reforms fit into a move towards sustainable management:

- Coherence: Kyrgyzstan has been pushing for a different repartition of contributions to the fund, and a reconsideration of the organisation's goals to fit the current reality;
- Accountability: the member countries and the RWG are specifically working to design a monitoring and accountability mechanism for water management, with the aim of increasing trust and transparency;
- Independence: the reforms aim to increase the transparency within the organisation, and ensure multi-level governance through a better organisation of the fund's branches;
- Equality: Kyrgyzstan has been pushing for all members' interests to be considered equally within the fund;
- Motivation: the IFAS reforms aim to increase participation of all members, and encourage the return of Kyrgyzstan.

A sustainable management of water resources as a CPR through IFAS could improve cooperation in the region by fostering trust and openness. Most of all, however, the reforms would encourage even further the understanding of the need for sustainable management of water in Central Asia, and therefore create an incentive for states to maintain a close relationship and cooperate on environmental problems as well as on broader issues highlighted above.

Thirdly, the analysis of IFAS has shown its importance in the international community. Through its actions and its position in institutions worldwide, IFAS has helped make the Aral Sea catastrophe a global problem, integrating the ASB to the global climate and economic systems. This brings a lot of attention from foreign partners and donors to Central Asia and enables the region to have global importance. This means that the Central Asian states have an incentive to continue cooperation in all fields, and present a unified front to partners.

In addition, such attention also gives the opportunity for national governments to take a position and show their respective initiatives to the international community, for example by hosting summits or conferences when they are Head of IFAS, or by being part of the implementation groups in World Bank or UN projects. This makes cooperation and a unified region even more beneficial for all partners.

d. Weaknesses and threats

Several features of IFAS also hinder cooperation in Central Asia. The biggest issue, highlighted by Kyrgyzstan's grievances against the fund, lies in the inequality between states within IFAS, and the consequences it has on power dynamics. The domination of Kazakhstan and Uzbekistan is rather clear in the sources of this case study. Of course, they are the two countries most affected by the fund's initial activities concerning the Aral Sea catastrophe and its consequences. However, the growth of IFAS into a regional platform for all water issues from this basis means that Kazakhstan and Uzbekistan do remain the most involved in the fund. This is reflected in the disproportionate amount of documents concerning the Kazakh presidency (2023-2026) found on all five government websites, compared to the Tajik presidency which took place just before, for a similar duration (2019-2023).

In addition, the World Bank documents highlight the Uzbek dominance in IFAS during the implementation of projects due to the location of IFAS branches, and the omnipresence of Uzbek representatives in committees and working groups for regional projects[123]. Proponents of IFAS reforms also note that many decisions are taken bilaterally and outside of the scope of IFAS[124], specifically between Kazakhstan and Uzbekistan, who work on attracting partnerships for the ASBPs, and ensuring the availability of water downstream without putting much effort into upstream concerns like the development of hydropower or industry. In terms of decision-making and implementation, the more powerful downstream states therefore reproduce the regional imbalance within the structure of IFAS.

This imbalance has been noted by Kyrgyzstan and in part explains why it froze its participation in the fund in 2016 after voicing the need for reforms since 2009. Though reforms are on the way and Kyrgyzstan remains an active observer in the fund, this power imbalance may also affect the potential for reform. Some demands for change are contradictory and though all states are party to the RWG, power imbalances remain in favour of more powerful states, and the benefits of IFAS may continue to be unequally distributed.

The organisational challenges of IFAS further reinforce these inequalities. The inefficiency of some of its processes, such as the change of presidency, the nationally-implemented programs and the proliferation of new institutions created in response to reform or climate change disfavours the states with the least resources and capacity, so the risks and costs are not distributed the same way as the benefits of the fund. States who can send less representatives,

[123] Barghouti, *An Independent Evaluation of the World Bank's Support of Regional Programs*.
[124] Президента Кыргызской Республики, 'Президент Сооронбай Жээнбеков: Кыргызстан Выступает За Комплексное Реформирование МФСА с Учетом Интересов Всех Государств Центральной Азии'.

or who cannot host large conferences or significant branches of institutions overall suffer greater costs because decision-making is delocalised from their territory and they do not receive direct benefits from projects undertaken downstream.

This overall limits cooperation on environmental projects, but also reduces trust and partnership in the region. The foreseen future conditions will only increase these problems. The acceleration of climate change, population growth, regional instability, and the question of Afghanistan all remain issues which IFAS may not have the capacity to withstand. If conditions worsen for all Central Asian countries, the institution may not be able to withstand rising tensions, and its inefficiency and imbalances may overall work against cooperation in the region on all fronts.

e. Cooperation potential of IFAS

IFAS remains a strong platform for cooperation in Central Asia and it has enabled greater trust and proximity between states since its creation. This analysis corroborates most of the hypotheses of this thesis:

(a) Treating water as a CPR in the region, through IFAS and the reforms underway, increases the potential for trust through a cohesive vision of the resource. It also opens the way for the consideration of other ways to use the resource, and especially the development of hydropower, which can stabilise energy and water distribution, ease existing tensions, and offer the opportunity for cooperation on infrastructure, connectivity and energy questions in the future;

(b) The technical and scientific dimensions of IFAS are strong sources of cooperation for research, education, infrastructure, or trade. The new economic opportunities in the ASB, which arise from ecological and industry research, have the potential to attract investment and incentivise states to act as a unified region, to distribute opportunities, funding and partnerships between members.

(c) Climate change is a key concern of IFAS, and through the institution, Central Asia has gained access to large forums to present opportunities and challenges in the region. Through IFAS, the climate of the ASB has become part of the global climate system, and concepts like SDGs and climate change mitigation have entered the region. This means that environmental cooperation increased, but also that Central Asian states accessed a framework to cooperate on a large panel of other issues promoted by the UN or the World Bank, and of interest for foreign partners attracted to the region through the Aral Sea.

IFAS however does not corroborate the fourth hypothesis of this work. Though Kazakhstan and Uzbekistan have driven many regional initiatives through IFAS, the position of more powerful states downstream seems to actually hinder cooperation, because it has created distrust and resentment over some issues like funding and the distribution of the benefits of environmental projects. The power imbalance is not overcome by the potential control of upstream states on water resources, and instead is reproduced within environmental and diplomatic institutions like IFAS. Cooperation is therefore not encouraged by this fact but rather hindered. The extent of resentment and tensions within IFAS is much lesser than what can be seen for instance in the case of Rogun Dam, but tensions remain nonetheless, and if other states were to follow the path of Kyrgyzstan and take distance from IFAS, this would mean dismantling the most important platform for environmental cooperation and diplomacy in Central Asia.

4. Qosh-Tepa Canal

a. Background

Afghanistan is a riparian state of the Amu-Darya through the Panj River, which flows from the Pamir and Hindu Kush mountains and follows the border between Afghanistan and Tajikistan, before joining the Vakhsh River to form the Amu-Darya (Figure 10). Afghanistan is therefore upstream from Turkmenistan and Uzbekistan, and any diversion from water of the Panj or Amu-Darya into Afghanistan has an impact on both countries' water availability [125].

Despite this, Afghanistan has not been party to any water-sharing agreements since Central Asian independence in 1991. Until recently, this has not been an issue because the yearly Afghan intake of water from the Amu-Darya has never exceeded $2km^3$, which is only about 4% of the Amu-Darya's annual flow, due to the underdevelopment of the Northern region of the country. Qosh-Tepa canal project arose in the 70s, with the aim to develop the Northern region and limit poverty and food scarcity. The project was stopped due the Soviet-Afghan war and interest was renewed only in 2014, leading to the Islamic Republic of Afghanistan (IRA) beginning construction in 2021 with American support. When the Taliban seized power, the project became a national priority, with about 25% of tax revenues being funnelled into the project since 2021 [126].

[125] Ilkhamov, 'Implications for Uzbekistan's Water Supply of Qosh Tepa Canal Construction in Afghanistan'.
[126] Ilkhamov, 'Implications for Uzbekistan's Water Supply of Qosh Tepa Canal Construction in Afghanistan'.

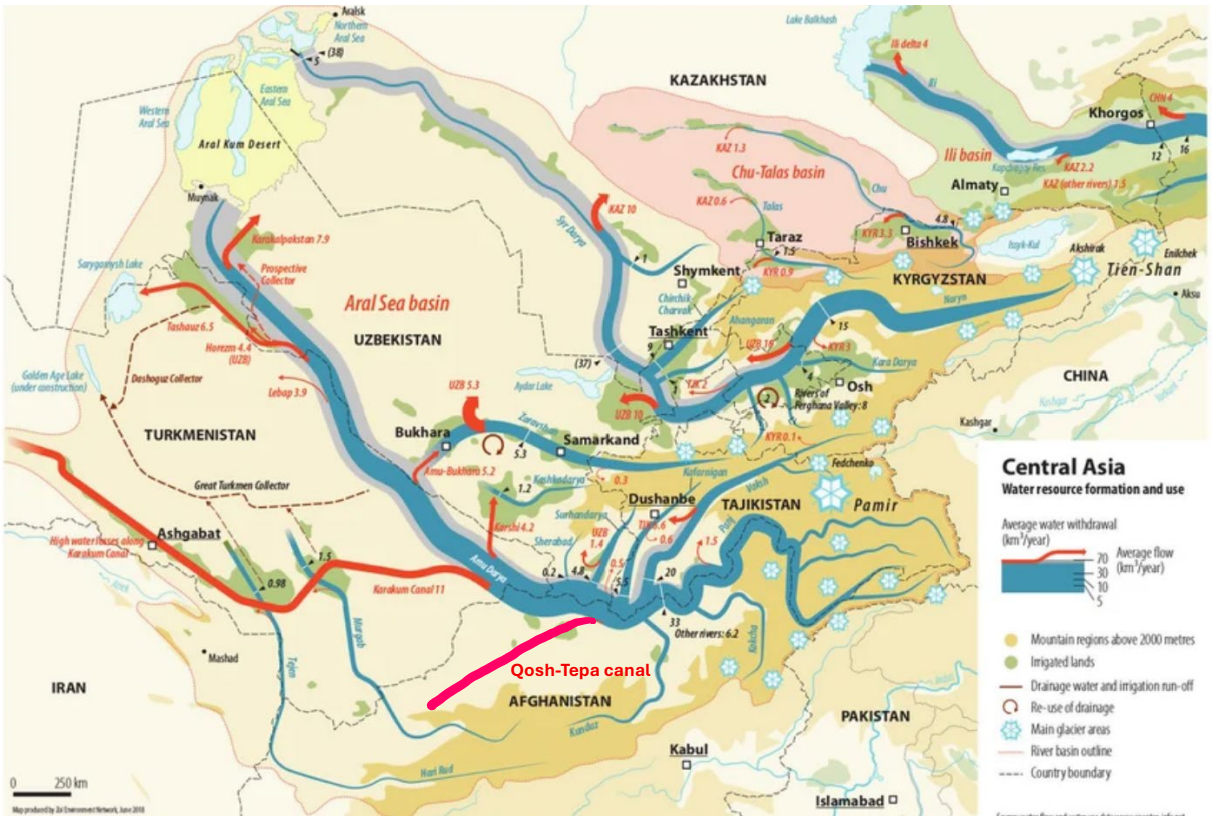

Figure 10. Map showing the course of the Amu-Darya and the location of Qosh-Tepa canal (modified by the author) [127].

Beyond aiming to solve economic and social issues like food scarcity and unemployment by increasing irrigation in the northern regions, Qosh-Tepa canal is a political tool for the Taliban. First of all, the canal is advertised with a lot of focus on SDGs and sustainability goals. Indeed, when completed, the canal would limit hunger, poverty, unemployment and desertification in the country [128]. In addition to this, the project appears as an important symbol of power for the Taliban, for whom the completion of the largest canal in the world would legitimise their competence and strength, thus explaining why so much political and financial focus is given to the project [129].

The legitimacy of this project under international law is unclear. The latest legal document determining Afghanistan's right to Amu-Darya waters, Protocol No.566, was adopted unilaterally by the Soviet Union in 1987. The allocations of this protocol distributed water between Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, leaving no allocation to Afghanistan, and these quotas have been retained in the Almaty Agreement of 1991. Since then,

[127] Prniyazova et al., 'Sustainable Transboundary Water Governance in Central Asia'.
[128] Sarbiland and Stanikzai, 'Qosh Tepa Canal Impact on Economic Development'.
[129] Mushtaq, 'The Economic Importance and Self-Sufficiency of QOSH TEPA Irrigaton Canal'.

Afghanistan has only issued its own policies for water use and management, but is not party to any of the Central Asian agreements or institutions on water-sharing, and has not accessed the UN Convention on the Protection and Use of Transboundary Watercourses and International Lakes, to which Uzbekistan is party [130]. This said, because 23% of the Amu-Darya flow emerges from Afghanistan, the consensus remains that Qosh-Tepa canal is legitimate and that some water from the Amu-Darya indeed should be available for Afghan use [131].

However, Qosh-Tepa canal is bound to have stringent effects on downstream countries since Afghanistan will use an additional 20% of the current Amu-Darya flow. Considering that the river's flow is likely to be greatly reduced in the next decades due to climate change, downstream countries will be left with only at best 57% of the total flow of the river, compared to the current 83% [132].

Negotiations on this point are very complex. Firstly, Central Asian states do not recognise the Taliban as a legitimate head of state, therefore making it difficult to begin formal diplomatic discussions. However, due to the real threat which Qosh-Tepa canal represents for Uzbekistan, some steps are being taken by Uzbek authorities to cooperate with Afghanistan.

In general, Uzbekistan already entertains ties with the Taliban authorities to cooperate on security issues within Uzbekistan. They also have important cultural and historical ties, which imply frequent interactions in the border regions. Furthermore, though Uzbekistan has power over energy supply in Afghanistan, any measures limiting energy availability would put internal and regional security at risk [133]. Instead, Uzbekistan has therefore opted to strengthen its ties with Afghanistan. By diversifying its economy, Uzbekistan is opening up to Afghan markets and increasing trade between Afghanistan and Central Asia. At the same time, Uzbekistan is offering support to the construction of the canal, in order to limit degradation downstream and water use inefficiency due to construction defects [134].

The problem is deepened by conflicting Russian and Chinese interest. While Russia is attempting to retain its sphere of influence in the region, China is also seeking new transport

[130] Ilkhamov, 'Implications for Uzbekistan's Water Supply of Qosh Tepa Canal Construction in Afghanistan'.
[131] Keshawarz and Faqiryar, *Qosh Tepa Irrigation Canal and Its Effects on the Water Resources of the Neighboring Countries in Central Asia*.
[132] Ilkhamov, 'Implications for Uzbekistan's Water Supply of Qosh Tepa Canal Construction in Afghanistan'.
[133] Kabir, 'Uzbekistan's Strategic Hedging'.
[134] Keshawarz and Faqiryar, *Qosh Tepa Irrigation Canal and Its Effects on the Water Resources of the Neighboring Countries in Central Asia*.

routes through Central Asia and possibly Afghanistan, thus making Central Asian relations with Afghanistan dependent on the intentions of adjacent great powers [135].

b. SWOT Analysis

This analysis is based on a collection of 13 documents, issued from the World Bank (2 documents), the UN (6 documents), the Kyrgyz government (1 document), the Turkmen government (3 documents) and the Uzbek government (1 document).

The UN and World Bank documents mostly concern the general water situation in the Amu-Darya basin and in Uzbekistan, with some reports from the Central Asia Water and Energy Platform (CAWEP). The documents from Uzbekistan, Turkmenistan and Kyrgyzstan are reports of speeches given by heads of state, and of consultations between panels of experts on the situation in Afghanistan and specifically Qosh-Tepa canal's impact on Central Asia.

Table 6. Qosh-Tepa canal SWOT Analysis.

Dimension	Description	Evidence	Impact
Strengths	Bilateral discussions	Agreements with Turkmenistan, and Tajikistan on border water resources. Uzbek visits to Afghanistan. Mentions of the need to involve Afghan representatives in IFAS.	Bilateral agreements with Afghanistan in the past may help ease relations, manage water effectively, and create a more stable regional security. At the same time, discussions about the project bring Central Asian states together.
	Recognition of Aghan interests	CA states often mention that Afghanistan has a right to its share of the Amu-Darya, and that the canal will help with food security and poverty in the country.	Because CA recognises Afghan issues, they may be more inclined to offer help to ease tensions and find mutually-beneficial solutions, thus extending beyond only water-sharing arrangements.
	De facto integration of Afghanistan to Central Asia	The UN, World Bank, and CAWEP's projects are often designated as "Central Asia and Afghanistan", giving funds and designing projects around the region and all six countries.	The integration of Afghanistan to Central Asia in international and regional institutions encourages a unified vision of concerns and enables the crafting of region-wide solutions.
Weaknesses	Fear and distrust	The scale of the project is alarming to Uzbekistan and Turkmenistan, and no official communication is set up about the project. Lack of information and transparency.	Distrust and lack of communication limits the possibility for states to cooperate. Tensions arise between Afghanistan and CA, but may also appear between CA states if they adopt different strategies towards Afghanistan.
	Non-recognition of Taliban authorities	Bilateral agreements were struck with IRA and not the Taliban. Afghanistan not party to any CA water treaties or institutions. Non-recognition of the Taliban authorities means that new agreements cannot be struck.	Until the status quo remains on the legitimacy of the government in Afghanistan, no official diplomatic ways can be taken and for now Afghanistan therefore has no legal obligations.
	Situation in Afghanistan	A common concern is that Afghanistan's situation does not allow the country to worry about others and about the environmental situation of the Aral Sea or of Central Asia.	A mismatch between goals, capacities and concerns is a powerful deterrent to cooperation and may lead to the failure of any formal or informal agreements struck now or in the future.

[135] Kabir, 'Uzbekistan's Strategic Hedging'.

Opportunities	Joint projects	Uzbek attempts to be involved in Afghanistan with trade and connectivity (transport thanks to the canal). CASA-1000 energy project. Joint working group and research in CA about Afghanistan.	Qosh-Tepa canal issue is encouraging Central Asia to look for multi-faceted solutions, both with Afghanistan and outside the region, thus increasing overall cooperation.
	Water-saving technology	CA unanimous about the need to consider water-saving technologies in CA and introduce them in Afghanistan, and to move from water-sharing to joint water use.	The project could precipitate the adoption of much-needed technologies, the diversification and restructuration of Central Asian economy and the fundamental principles of water use in the region.
Threats	Instability in Afghanistan	Weak and unstable economy. Electricity shortages making the situation worse and internal and regional security unstable.	An unstable economic, political and logistic situation in Afghanistan can put cooperation in danger. It can reduce trust between partners, make economic or political relationships dysfunctional, and limit project implementation.
	Already difficult situation	Qosh-Tepa canal adds onto an already tense situation, due to climate change and erosion on irrigable land. Risk of pollution due to tailings ponds. Additional blow for the Aral Sea, which it might not be able to sustain.	The situation being already unstable, Qosh-Tepa canal adds new pressures and increases tensions. This put cooperation greatly at risk in the entire region, including between Central Asian states.
	Geopolitical situation	Involvement of Russia, China or Pakistan in Afghanistan may make it difficult for CA to take positions in Afghanistan, economically and politically.	The involvement of external states may have various effects on cooperation in Central Asia. It could bring states together to form a common front, or it could make cooperation even harder because of the worsening of tensions and water scarcity.

c. Strengths and opportunities

The Qosh-Tepa canal case is fairly different from the previous three cases. Whereas the others looked at the potential for cooperation between the Central Asian states, this case broadens to also look at cooperation between Central Asian states and Afghanistan, both as a region, and bilaterally. To a certain degree, Qosh-Tepa canal has led to greater cooperation in the region, and has potential to increase cooperation in some circumstances. In part, the existential threat the canal poses on Uzbekistan and Turkmenistan forces these countries to cooperate both with other Central Asian states and with Afghanistan.

This cooperation already has an institutional and legal basis. All three Central Asian states bordering Afghanistan have past or current relations. Though these relations were predominantly established with the IRA and not with the Taliban, they still exist, and it is reasonable to believe that institutions such as the Afghanistan-Tajikistan five-year memorandum of understanding on environmental protection and the Coordination Commission on water management issues between Turkmenistan and the Islamic Republic of Afghanistan can still function with the current political situation, even if partially. Projects are also in place

which would increase Afghan integration to Central Asia, like the energy project CASA-1000 meant to supply energy to Afghanistan from Tajikistan and Kyrgyzstan.

Furthermore, Uzbekistan has made clear its position towards Afghanistan. Though he will not recognise the Taliban government, President Mirziyoyev has often noted the need to cooperate with Afghanistan to protect food, water, energy and internal security in the region[136]. Uzbek delegations have been sent to Afghanistan, to increase economic and cultural ties, speak of regional security, and offer technical support to the building of the canal.

Overall, the Central Asian stance is to recognise the right of Afghanistan to use the water of the Amu-Darya, despite fear and concerns, and to therefore work together to mitigate the effects on the region. For the Uzbek side, this takes the form of exploiting the shared border with Afghanistan to penetrate the Afghan market, and increase trade and connectivity in a realist, practical manner, with as little involvement in the political and geopolitical situation as possible. Meanwhile, President Tokayev of Kazakhstan has also called to consider the inclusion of Afghanistan into IFAS[137], Turkmen representatives have stressed that Central Asia and Afghanistan are environmentally united and interdependent[138], and organisations like CAWEP, the World Bank and the UN have continuously included Afghanistan into Central Asian considerations. This displays the interest of all partners to cooperate with Afghanistan on environmental issues, which enable cooperation on economic questions, energy, security, monitoring and data-sharing.

In addition, CPR management is also very salient in this case. The analysis unfortunately lacks the current perspective of Afghan authorities, but the Central Asian response to Qosh-Tepa canal displays a vision of water as a CPR, and suggests that Afghanistan could be integrated to this framework:

- Coherence: recognition of Afghan rights suggests the redefinition of the resource and of the community, and the need to redefine rules for its management (revision of the Almaty Agreements);

[136] Gov. Portal Repub. Uzb., 'Address by the President of the Republic of Uzbekistan Shavkat Mirziyoyev at a Meeting of the Council of Heads of the Founder States of the International Fund for Saving the Aral Sea'.
[137] nCa, 'The Lifeline'.
[138] nCa, 'Afghanistan Is Building an Enormous Canal to Draw Water from Amudarya River. This May Affect Water Availability Situation in Central Asia.'

- Accountability: concern about surveillance and availability of information on the construction of the canal, and suggestion of Afghan membership to IFAS to increase partnership and the possibility of conflict resolution;
- Independence: call for transparency and direct communication, opening of dialogue with Afghanistan by Uzbek delegations;
- Equality: consideration of Afghanistan as a user, who should therefore get equal rights to water, and participate in rule-making through Central Asian institutions like IFAS;
- Motivation: clear desire of Central Asian states to cooperate, for existential and security reasons. Benefits for Afghanistan to cooperate (legitimacy, stability, increased trade…).

The conditions for sustainable management in the case of Qosh-Tepa canal are of course not met at the moment, but the Central Asian states have made it clear that this was what they expected from possible cooperation with Afghanistan.

Finally, Qosh-Tepa canal, through the alarm and fear it is causing for Central Asian water security, has reminded Central Asian states of the importance of regional cooperation and has put on the agenda the need to reevaluate the fundamental water management philosophy of the region. Beyond the interest in forming regional and international research and management groups focused on the consequences of Qosh-Tepa canal, scientists from Kyrgyzstan and Kazakhstan have been particularly vocal on a change of approach. For instance, Bulat Yesekin, a Kazakh researcher on eco-politics and environmental management, notes:

"It is better this way than everyone digging canals, building reservoirs, dams and dikes, thereby worsening the overall situation. When there is no water, it is necessary to move from water sharing to joint water use.[139]*"*

This approach would necessarily increase regional cohesion if put into practice before tensions increase, as it would imply the pooling of resources, the restructuring of the regional economy and trade, and a more integrated political agenda.

d. Weaknesses and threats

Despite the cooperation imperatives opened up by Qosh-Tepa canal, the situation remains particularly tense in the region, due primarily to the fact that the project worsens an already difficult situation in terms of water security. The stringent impact of climate change, population

[139] Central Asian Bureau for Analytical Reporting, *Experts from Central Asia Discussed the Impact of the Construction of the Afghan Kushtepa Canal on the Water Balance in Central Asia*.

growth, industrial development and the international political situation causes a lot of fear and concern in Central Asia. These concerns are deepened by the certainty of lower water availability for Uzbekistan and Turkmenistan whose water consumption continues to increase and is still necessary for their economy and agriculture, and by the non-existent institutional framework surrounding Qosh-Tepa canal.

The canal also represents, according to Turkmen and Uzbek representatives, including Vadim Sokolov (Head of Agency of IFAS in 2023), the "nail in the coffin" for the Aral Sea[140]. The diversion of the Amu-Darya by Afghanistan impacts the water availability in Turkmenistan and Uzbekistan, but also towards the Aral Sea. As a symbol of water scarcity in Central Asia, the impact the canal has on the Aral Sea is politically significant. Despite recognition of Afghan rights to Amu-Darya waters, the impact on the Aral Sea may still increase resentment towards the scale of Qosh-Tepa canal.

As such, due to previous tensions and to the current situation, Central Asian states overall do not harbour trust towards the Taliban authorities, which they do not recognise, and with which they have no official political ties. Furthermore, the lack of communication about the canal increases this distrust, as Central Asian states rely on media sources and satellite images to gauge the progress of the canal.

Beyond this, the analysis above has displayed the clear doubt of Central Asia concerning the commitment of Afghanistan to environmental concerns, sustainable development and cooperation with its neighbours. As noted by Sokolov, Tokayev and Turkmen representatives, the difficult economic, political and social situation in Afghanistan limits the possibility of ecological and regional consideration for the authorities[141]. Indeed, the Central Asian states recognise that the register of concerns is rather different, when saving the Aral Sea is put against the need to secure food, drinking water and electricity for the Afghan population. Though greater security in Afghanistan has a positive impact on the region, the issue remains that Afghanistan may not be interested in Central Asian sustainability goals, through which a lot of investment is funnelled in the region. Issues like the Aral Sea and water security, as well as possible pollution due to tailings ponds (ponds used to store waste from ore extraction) along the river all threaten Central Asian goals and limits the willingness for cooperation.

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[140] Central Asian Bureau for Analytical Reporting, *Experts from Central Asia Discussed the Impact of the Construction of the Afghan Kushtepa Canal on the Water Balance in Central Asia*.
[141] Central Asian Bureau for Analytical Reporting, *Experts from Central Asia Discussed the Impact of the Construction of the Afghan Kushtepa Canal on the Water Balance in Central Asia*.

Here, we therefore see that the partners not having compatible goals – a requirement for sustainable cooperation as based on Kurowska's criteria – increases tensions and limits the motivation for cooperation from the Central Asian side. It jeopardises the possibility of a unified approach towards Afghanistan, as is clearly displayed by Uzbekistan's pragmatic rapprochement, compared to alarm and distrust on the Turkmen side.

Finally, the geopolitical situation makes it difficult for Central Asia to take any formal stance on Afghanistan. This subject was broached on the discussion of the possibility of diverting Siberian rivers into Central Asia to offset the effects of Qosh-Tepa canal. Though deemed rather unrealistic, this project still questions the involvement of Russia in Central Asia and the maintenance of its sphere of influence in the region, as well as in Afghanistan. The worldwide non-recognition of the Taliban authorities, with Russia the only exception, makes it difficult for Central Asia to have any formal relations with Afghanistan, but it may also make it harder for Central Asia to work with Russia on the issue.

Though this question was not featured in the analysed documents, we may also further hypothesise on the geopolitical undertones of the situation, with other countries like China and Pakistan being involved in CASA-1000, in connectivity projects in Central Asia and Afghanistan, and in the economic landscape of Central Asia as a whole. This geopolitical background may eventually guide the Central Asian stance on Afghanistan and influence the effects of Qosh-Tepa canal on the region.

e. Overall evaluation

The point of this case was to broaden the scope of Central Asian cooperation and fill the gap left by Afghanistan as a riparian state of the Aral Sea basin, which was a threat to cooperation in the case of Rogun Dam and IFAS.

The findings of this case can give perspective on the hypotheses of this thesis, but it must be noted that here cooperation is not only between Central Asian states but also between Central Asia as a region and Afghanistan, and bilaterally between Central Asian states and Afghanistan:

(a) We saw that the Afghan question implied the consideration of water as a CPR. On the one hand, this means that Central Asian states recognise Afghan rights and interests, can consider including representatives to IFAS, and can work towards a more cohesive water management philosophy. On the other hand, the CPR framework also highlights important shortcomings, including the lack of inclusion of Afghanistan into Central

Asian water diplomacy after independence, the absence of transparency and communication on the Afghan side, and the weak reliance and capacity of the Central Asian economy to added water stress. The CPR framework therefore partly enables cooperation on environmental issues. As for other issues, it continues to encourage economic, infrastructure, connectivity and research cooperation but only up to a certain extent in the case of a state not integrated in the institutions born from the framework;

(b) Technical expertise required in environmental projects does lead to cooperation on infrastructure and research, with for example the proposal to create a regional working group about Qosh-Tepa canal, and the considerations about water-saving technology and construction aid. However, technical details have also revealed the lack of communication from the Afghan side;

(c) Climate change similarly has two opposite effects on cooperation in this case. While displaying the necessity to cooperate on a wide range of topics, especially research and economy, both within Central Asia and with Afghanistan, climate change also increases tensions and reduces trust. In addition, while climate change is a central preoccupation in Central Asia, both due to its impact on water security and in relation to foreign partnerships with the EU, the UN or the World Bank, the consensus is that Afghanistan does not share that concern. Incompatible goals on this issue therefore increases concerns of Central Asian states towards Afghanistan's will and capacity to cooperate;

(d) Uzbekistan, as the Amu-Darya's hydro-hegemon, has shown its commitment to cooperate with Afghanistan on a broad range of issues, prompted by the initial goal of environmental preservation in the face of Qosh-Tepa canal's construction. This willingness doubtlessly comes from Uzbekistan's wish to retain its powerful position in the region and to advance its development. The possibility to diversify its economy, access new markets, and position itself as the diplomatic link between Central Asia and Afghanistan. As such, Uzbekistan's relative power in the region enables simple environmental cooperation, as it exists between Afghanistan, and Tajikistan and Turkmenistan, respectively, to reach broader forms of cooperation in the trade, culture and connectivity sectors.

Additionally, this case highlights the importance of considering the region as a single basin, including Central Asia as well as Afghanistan, as one of the centre pieces of water availability and security. This notion exists among Central Asian states, as well as in international organisations, who send funds and design projects towards all six countries. Beyond

considering water as a CPR, we see an extension of what also appeared in IFAS, where the region's climate was a resource common to the global community. Here, though only the waters of the Amu-Darya are concerned, Qosh-Tepa canal may have impacts on water security in the entire region, but can also affect regional security and economic stability.

Most of the weaknesses and threats highlighted above come from Afghanistan's exclusion from water agreements and diplomacy in the region. As such, this shows the extent to which regionalism plays a part in cooperation in the context of Central Asia.

CHAPTER VI: CONCLUSIONS

1. Findings

a. The shared sustainable management of common-pool resources increases cohesion

It has been clear in the analysis of this work that Central Asian states consider water as a CPR in the region and that they are moving towards a joint, sustainable management of their resources as outlined in Table 1.

We saw ample evidence of this movement throughout this work, which is summarised in the table below, based on the framework of Table 1:

Table 7. Sustainable CPR management of water in Central Asia.

COHERENCE	- Redefinition of the community to include Afghanistan and revise the uses of water to include hydropower generation - Consideration of the goals and interests of all the partners, both upstream and downstream - Joint financial mechanisms to ensure appropriate resources for management for all partners, such as regional banks and co-funding of infrastructure
ACCOUNTABILITY	- Development of joint monitoring and warning systems on waterways of the region, for water consumption, flood and seismic risk - Suggestion to develop a conflict-resolution mechanism in revised agreements
INDEPENDENCE	- Interest in bilateral and multilateral negotiations - Increased regionalism and autonomy from foreign partners and donors, including Russia - Demand for transparency and direct communication through monitoring and technical expertise
EQUALITY	- Inclusion of all partners in talks, including Afghanistan, with equal rights to the water resource

	- Joint projects such as Kambar-ata-1 HPP to distribute risks and benefits - Reestablishment of the water-energy barter system
MOTIVATION	- Incentives for cooperation through the interest of foreign partners and awareness of the region's vulnerability - Demands for reforms and development of new opportunities and projects to increase long-term potential of partnerships.

Almost every criterion of the CPR management framework is being fulfilled in theory, and the ones that are not yet fulfilled are being actively discussed within cooperation platforms of the region such as IFAS.

As suggested by hypothesis (a), a movement towards CPR management of water resources in Central Asia participates in increasing regional cooperation between states. The most immediate effect of this is an overall increase in trust between countries. Within this framework, management is subject to higher accountability and therefore limits possibilities of "cheating" by appropriating a larger part of resources. In addition, the interests and capabilities of countries are more widely considered. It is strongly the case here, and is shown primarily through the rise of HPP projects in the region, which help increase the benefits towards upstream countries and therefore their participation. The reestablishment of the water-energy nexus and barter system solves tensions between upstream and downstream states, including Kyrgyzstan's displeasure with IFAS or resentment from Tajikistan and Kyrgyzstan's inability to create as much economic value from water resources as their downstream counterparts. This shifts water management away from a zero-sum game framework and encourages cohesion and integration.

Beyond simply garnering trust, this framework of management enables cooperation on a wide range of issues, including energy, technology, infrastructure, trade, connectivity or research. CPR management of resources leads states to recognise that Central Asia is fundamentally interconnected as one large basin composed of several rivers, which increases the recognition of the importance of regionalism. This means that they may change management philosophy, from water sharing to joint water use, and therefore cooperate on water saving technologies and research and on developing an integrated regional market to improve reliance and efficiency of

the use of water, by trading a variety of goods like scientific data, agricultural products or energy.

The contraposition of this hypothesis, then, is also true. Indeed, as we saw above, some of the tensions surrounding water management in the region emerged from the missing criteria of the CPR framework. Most blatant is the threat still posed by Afghanistan on Central Asian water security. This threat emerges from fundamental shortcomings in the management of the water resources since the 80s, with an inadequate definition of the community of users of the resource, and an insufficient consideration of users' interests.

Indeed, with Afghanistan not a party to agreements and often excluded from more informal meetings, the entire system of cooperation is at risk, since Afghanistan remains a central riparian state of the Amu-Darya. With the current situation, it is difficult to include Afghanistan as a state, but Ostrom's framework also includes a multi-level organisation of governance, which could make it possible for Central Asia to interact with Afghanistan, locally, and limit the impacts of Qosh-Tepa canal on water availability in Uzbekistan and Turkmenistan.

Overall, this study shows that environmental cooperation enables regional cooperation because it gives a chance to treat resources as CPR, and their sustainable management fosters trust and an integrated water management philosophy. This allows countries to cooperate on a range of issues beyond the environmental sphere and creates a pathway to solve, or at least reduce regional tensions.

b. The need for technical expertise implies the creation of specific institutions and infrastructure

Environmental projects most often require technical/scientific expertise, from their onset to their completion. We mostly see the potential of this technical expertise to increase cooperation in the cases of Rogun Dam and IFAS. The riparian consultation meetings, which emerged after the World Bank assessments of Rogun Dam to assuage tensions between states created a platform for the discussion of numerous topics. The presence of experts can increase trust about feasibility and limit fear about the consequences of some projects. In addition, after discussing technical issues extensively, participants in those consultations mostly concluded that these issues could be addressed in a diversity of ways, ranging from data-sharing systems and joint research to increased regionalism through new water-sharing agreements.

Environmental issues can in addition quickly become multidisciplinary. This fact is displayed by the emphasis on research and education within IFAS. The socio-economic aspects of water

security are very varied and can cover the economy, health, accessibility, infrastructure, gender equality or education (Figure 9). This can therefore prompt a high level of cooperation for research on a variety of topics, thus leading to initiatives outside the environmental scope. Similarly, the creation of research institutions focused on water, climate change, or the environment in general, can improve relations between countries thanks to data-sharing between scholars, joint projects, and joint appeals for grants or assistance from foreign organisations.

Most importantly, though, the rise of institutions like IFAS, based initially on research and technical expertise, can lead to the creation of essential regional cooperation platforms. IFAS persevered through times of tensions and was one of the first institutions towards which states could turn when relations loosened around 2017, and through IFAS, conferences and forums could be organised. In the last years, IFAS forums also hosted, on their sidelines, other events giving a platform for regional discussions about transport, trade, education, culture or women's leadership. In this way, IFAS is not only a platform for water diplomacy but is also an opportunity for leaders to meet and discuss issues of interest in other domains, both bilaterally and multilaterally, using the occasion of being in one place.

The creation of IFAS also encourages the funnelling of investments and foreign partnerships into the region because of its membership to several international organisations, and because it acts as the implementation agent of initiatives led by the World Bank. As a result, maintaining such regional institutions is beneficial for all Central Asian states, as it brings attention to the region and permits investment in environmental projects, but also infrastructure, energy, or education, leading for example to partnerships with universities outside the region. States are incentivised to keep a high level of cooperation because foreign partners look well upon regional stability, especially when they are backed by cohesive regional institutions such as IFAS.

Despite this, the technical expertise inherent to environmental projects can also be detrimental to cooperation in some cases:

- if there is no technical expertise, therefore revealing a lack of transparency;
- if the expertise confirms fears about the project;
- if the experts are not trusted.

The first two cases were observed for Qosh-Tepa canal, about which the Afghan authorities do not officially communicate to Central Asia, and for which assessments made by the experts

from the World Bank and the UN confirmed the consequences the canal would have on downstream states. The first case was briefly mentioned during the Rogun Dam consultations, with mentions of past negative experiences with the World Bank.

c. Climate change awareness makes conflict appear more costly

Climate change awareness is omnipresent in all four cases of this study. As the most pressing threat to Central Asia, this awareness has provoked both concerns and opportunities. Indeed, climate change overall promotes cooperation. It displays water as a CPR and encourages joint management of the resource, making it salient for states that conflict over water, with the threat of climate change, will not be beneficial in the long-run. This is displayed by frequent demands from leaders and state representatives to change the water governance philosophy from "water sharing to joint water use"[142]. As such, climate change does make conflict appear more costly and incentivises Central Asian states to cooperate on a large scale, thus moving towards greater regionalism and integration, in the same way as described in Hypothesis (a).

Beyond shaping the vision of resources in Central Asia, climate change is a key diplomatic tool for the region. The study of IFAS has revealed that awareness of the changing climate has enabled Central Asia to be integrated into the global climate system. The loss of the Aral Sea has received international attention and the efforts of Central Asian states, through IFAS, to mitigate the Aral Sea tragedy has increased the amount of investment and partnerships for the region, with institutions like the UN, the EIB, or the World Bank.

Since, Central Asia systematically brings climate change and SDGs into diplomatic conversations outside of the region. This has led to green energy deals and research and education partnerships, a strengthening of economic and trade partnerships, institutional, financial and technical support for infrastructure projects, and discussions of new trade routes between Asia and Europe, by appealing to the EU, the World Bank or the UN, who are particularly sensitive to sustainability questions. Indeed, these institutions are often cited as "applauding" and "admiring" Central Asian commitment to SDGs[143] and are therefore prompted to invest into the region to fund sustainable initiatives, enabling the development of large-scale hydropower projects like Rogun Dam and Kambar-ata-1 HPP, or the founding of research institutions like CAREC. They also appeal to partners interested in investing in

[142] Central Asian Bureau for Analytical Reporting, *Experts from Central Asia Discussed the Impact of the Construction of the Afghan Kushtepa Canal on the Water Balance in Central Asia*.
[143] nCa, 'Outcomes of the First Central Asia–EU Summit in Samarkand'.

technology and other forms of green energy like Saudi Arabia and the UAE, thus increasing the potential for energy security in the future, and making Central Asia a future key stone region for green energy.

In these circumstances, foreign partners also frequently appraise all forms of cooperation within the region, which increases confidence in regional stability and security and therefore encourages further and longer-term investments and partnerships. In this sense, conflict would be even more costly for Central Asia because it would risk disrupting the current partnerships and potential for the future. Indeed, if the region is globally perceived as stable and if tensions are contained, Central Asia will continue to get more diplomatic space globally, and to receive support and partnerships.

This said, climate change also threatens cooperation in the future if Central Asia continues to rely on water in the same way as it does currently. As water resources decrease and desertification in the region intensifies, tensions can return if economic and political stability are jeopardised by water scarcity. Central Asian leaders are aware of this and the work of IFAS and overall regional diplomacy aims to limit this risk. However, new conditions also appear, including population growth and the rise of new economic sectors triggering higher water demands, as well as, most pressingly, the introduction of Afghanistan's use of Amu-Darya waters.

As pointed out in conversations about Qosh-Tepa canal, Afghanistan's priority is short-term development and food security, rather than climate change mitigation and long-term integrated water management. In this sense, the added pressure of climate change will quickly have an impact on all riparian countries, and will limit the girth Central Asia will have to manage its own resources from which Afghanistan has been excluded. Awareness to this fact makes states more wary for the future and therefore can limit trust and long-term partnerships.

d. States may be impacted regardless of their economic and political power and therefore rely on cooperation with others

Regionalism is key when discussing the impact of the region's power dynamics on cooperation. As we saw, environmental insecurity impacts richer, more powerful downstream states as much as it impacts less powerful states, if not more when considering water security. Many examples exist worldwide of water scarcity as a weapon in water-related conflicts, as well as water

conflicts linked to other forms of tensions [144]. Consequently, downstream states rely on good relations and cooperation with upstream states to ensure the stability of water availability, especially when they are so dependent on the resource as is the case in Uzbekistan and Kazakhstan.

This research has shown that this upstream/downstream power dynamic can have various effects, and in the cases studied here, the effects are positive when Kazakhstan is involved, and ambivalent when Uzbekistan is the main downstream stakeholder.

For the latter, Uzbekistan's resistance to Rogun Dam and relative unwillingness to negotiate with Tajikistan are however not revelatory of any overall trend, because Uzbekistan is cooperating on other hydropower projects with Tajikistan and the tensions surrounding Rogun Dam are multifactorial and exist in the context of post-independence struggles. The case of Qosh-Tepa canal, however, suggests that Uzbekistan's position of power may give it more opportunities and breadth to deal with the issue bilaterally with Afghanistan, devise solutions, and limit the impacts of the canal by looking for economic diversification and offering technical support to the canal's construction.

In the case of Kazakhstan, Kambar-ata-1 HPP and IFAS do show the country's interest in promoting environmental cooperation in Central Asia to fulfil interests outside of the environmental sphere. The omnipresence of IFAS in international discussions under Kazakhstan's presidency and the flagging of Kambar-ata-1 HPP as a development priority in Central Asia for the EU and the World Bank show the potential such projects can have to promote Central Asia on the global stage and attract investment. It is therefore in Kazakhstan's interest to promote regional stability and cooperation, and in the rest of the region's interest to follow.

Though IFAS at times suffers critiques towards the power imbalances within its structure, the regional hegemons (Kazakhstan and Uzbekistan) show willingness to adapt the structure of regional cooperation on water issues, in order to assuage tensions and solidify cooperation, for example by integrating energy into water considerations, and by showing commitment to supporting projects all over the region, thus increasing cohesion in Central Asia.

[144] Sers, 'The Weaponisation of Water'.

2. Discussion

a. Contribution to the literature

Overall, this work has demonstrated that environmental cooperation on diplomacy, institutions, research or infrastructure, can favour cooperation as a whole in Central Asia. This angle of cooperation in the region has not been described in the literature, but it matters because Central Asia now faces the challenge of finding sustainable avenues and platforms for cooperation, in order to solidify regional stability and limit the return of tensions.

The point of this research was to show the importance of environmental cooperation, which sometimes appears as lower-stake than economic or military cooperation, but which could also be more stable on the long-term due to the factors highlighted in the hypotheses above. Beyond the importance of climate change mitigation and environmental conservation, the point is also to expand on Sneddon's theory of the benefits of environmental cooperation and add to the critical hydropolitics view that environmental cooperation for the sake of the environment is not enough to encourage stakeholders to cooperate [145].

This study serves to show that environmental cooperation can in fact be instrumental in garnering trust, cohesion and integration at a regional level, and limit tensions that exist between stakeholders, especially as environmental challenges are becoming more pronounced and interest in such avenues of cooperation is growing globally.

The case of Central Asia is particular in many aspects, the context and layout of the region being difficult to extrapolate. The findings highlighted above are associated with the other dynamics of the period of rapprochement since 2017 and as shown by Harari, environmental cooperation in itself is not enough to overcome conflict. Cooperation requires some form of collective goal or philosophy. The improvement of relations in Central Asia since 2017 has enabled platforms to emerge and what this thesis has shown is that these platforms have been instrumental in creating a regional identity and vision of water management, enabling further closeness and cooperation.

The findings of this work, though not universal, can still serve as a basis to point out similar dynamics elsewhere, be it within water basins, or in regions sharing other environmental resources, thus expanding the body of literature on environmental cooperation as a peace-

[145] Sneddon and Fox, 'Rethinking Transboundary Waters'.

making tool to a bigger scale than local and community initiatives to study cooperation between states and regions.

b. Limitations

Though this work aims to be thorough and complete, some limitations appeared during the writing process. The biggest challenge of this research was to balance document availability with the need for sufficient primary sources. Indeed, data bases of Central Asian governments are sometimes incomplete and navigation in these bases can be challenging. Navigating between the local language, Russian and English led to a variation of the spelling of the researched terms (for example, Qosh-Tepa was sometimes spelled Kush-Tepa, or Q'ush-Tepa, etc.), which in turn could have biased the results of the search engines on the different governmental websites as well as in the World Bank database where spellings were sometimes inconsistent. Every identified spelling variation, however, was requested into these databases, to limit this effect.

The incomplete nature of governmental databases also prompted the choice to look at news publications as well as ministerial reports and speeches, in order to expand the breadth of sources and be able to create an idea of the discourse surrounding a specific project. As a consequence, it was at times difficult to identify negative views on projects. In the case of Rogun Dam, for example, the Uzbek government did not publish any documents, which could have caused to underestimate the tensions existing about the project. The use of World Bank and UN documents to some degree solved this issue. External experts and unfiltered minutes of meetings made it possible to identify sources of tension which were not mentioned in governmental publications. Based on external sources, it was therefore easier to treat the absence of documents or the absence of negative views in governmental publications as results in themselves.

Secondly, this work heavily relied on Ostrom's CPR management framework. This framework, however, is designed to look at a much smaller scale of local stakeholders. Because of this, the framework was complemented with the work of Kurowska, which looked at international joint management of resources. The choice was therefore made to extrapolate Ostrom's theory and not deeply consider multi-level management of CPR and possible grassroot and bottom-up projects, which are the focus of Ostrom's work. The point was however to study cooperation between states and the CPR framework still applied to inter-state relations, as explained at the

beginning of this work. However, the literature could also benefit from studying multi-level water governance in Central Asia as a possible platform for cooperation.

Finally, this work focused a lot on the discourse and the position of states but did not systematically approach the evaluation of the cooperation which in effect exists in Central Asia. While this work has shown the potential of environmental cooperation on rapprochement between Central Asian states, it has not been able to evaluate to what degree environmental cooperation actually furthered regional cooperation in practice. This would require a quantitative and comparative case study, which was not the goal here, in order to track down the real impact the projects studied here have had on Central Asian relations.

c. Further considerations on Afghanistan and the region

Due mostly to the unavailability of sources, this work lacks Afghan perspective. Though not formally part of Central Asia, I have still made the choice to include Afghanistan within the region, through the Qosh-Tepa canal case study, and my findings have shown that Afghanistan indeed could not be decoupled from Central Asia concerning environmental management.

The lack of Afghan perspectives in this work echoes the threat that Afghanistan poses to Central Asian cooperation. The reasons for this threat were demonstrated through the findings of this research and have been extensively discussed above. However, two points which were very briefly mentioned in the analysis but were too partial to lead to substantive findings are worth investigating further.

Firstly, Central Asian leaders and experts hold the view that Afghanistan is not particularly interested in sustainability and climate change mitigation. The argument for this claim is that before being able to think about green energy and environmental conservation, states need to be able to feed their population and ensure national security. Central Asian states therefore argue that Afghanistan is in less of a position to care about sustainability, and as a result that they cannot expect Afghan authorities to share Central Asian SDGs.

This can raise discussions about the place of SDGs in development aid. However, the point I want to raise here is the extent of Central Asia's commitment to SDGs. Indeed, though climate change and sustainability are at the forefront of many conversations in the region and in forums that invite foreign partners, the region's average SDG index score, calculated based on the level of achievement of each SDG, remains barely above the global average. Most goals have many challenges remaining, including the climate action goal, with high disparities between

countries[146]. Meanwhile, Kazakhstan is the only country which has pledged a NDC in compliance with the Paris Agreements, and it is deemed insufficient by Climate Action Tracker[147]. Gas and oil remain essential regional commodities, in the energy mix and for exports.

The question therefore remains on whether it is possible to reconcile the displayed ambitions of Central Asia with reality, and whether this disparity will eventually have an impact on the potential of environmental cooperation in the region. If commitment to SDGs and environmental conservation remains superficial, commitment to cooperation could reveal itself superficial, too.

Secondly, the issue of Afghanistan raises the question of the rivalling spheres of influence which continue to converge in Central Asia. In this work, foreign powers have appeared mostly as partners, but further research ought to also look at the impact of "the new great game" on Central Asian cohesion and cooperation. As much in Afghanistan as in Central Asia, Russian, Chinese, European, American, South Asian and Gulf interests coexist and need to be taken into account when looking at the possibilities for cooperation.

These spheres of influence are extensively studied in the literature and it is likely that stronger ties between Central Asian countries will have an impact as well as be impacted by the geopolitical situation surrounding the region. In scenarios where it could influence the conditionality of partnerships and investments, or the access to resources outside the region, for instance, cooperation between states could be jeopardised and regional stability might be impacted.

As such, environmental issues are of great importance because of their interdisciplinary nature, which may shape power dynamic within a region as well as foreign interests. Resources and environmental security must be taken into account when looking at geopolitical pressures that surround them, and their study must also integrate the influences of a multitude of factors within and outside the region.

[146] Sachs et al., *Financing Sustainable Development to 2030 and Mid-Century. Sustainable Development Report 2025*.
[147] Climate Action Tracker, 'Country Ratings'.

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ANNEXES

Annex 1 List of Documents

Annex 1.1 Documents for Rogun Dam

Source name	Link	Date	Source
2nd Riparian Information-Sharing and Consultation Process on the Assessment Studies of a Proposed Rogun Hydropower Project	rogun2ndWBconsultation.pdf	2012	World Bank
4th Riparian Information-Sharing and Consultation Process on the Assessment Studies of a Proposed Rogun Hydropower Project	Report on 4th Riparian Consultation_FINAL_eng.pdf	2013	World Bank
Engineering and Dam Safety Panel of Experts for Rogun Hydropower Project	Microsoft Word - EDS PoE Final Report_280814_FINAL.docx	2014	World Bank
Final Report of the Environmental and Social Panel of Experts	VRA Ghana Proposal Pwalugu Dam	2014	World Bank
5th Riparian Information-Sharing and Consultation Process on the Assessment Studies of a Proposed Rogun Hydropower Project	https://www.worldbank.org/content/dam/Worldbank/document/eca/central-asia/Rogun%20Assessment%20Studies%20Fifth%20Consultation%20Report_eng.pdf	2014	World Bank
Key Issues for Consideration on the Proposed Rogun Hydropower Project	World Bank Note - Key Issues for Consideration on Proposed Rogun Hydropower Project_eng.pdf	2015	World Bank
SUSTAINABLE FINANCING FOR ROGUN HYDROPOWER PROJECT	World Bank Document	2023	World Bank
Generating Clean Electricity and Contributing to Climate Change Mitigation Goals: The Rogun Hydropower Plant, Tajikistan	generating_clean_electricity_and_contributing_to_climate_change_mitigation_goals-_the_rogun_hydropower_plant_tajikistan.pdf	2020	UN
Церемония ввода в действие второго агрегата Рогунской гидроэлектростанции	Cérémonie de mise en service de la deuxième unité de la centrale hydroélectrique de Rogun – Ministère de l'Énergie et des Ressources en Eau de la République du Tadjikistan	2019	Tajkistan
Речь на встрече со строителями Рогунской ГЭС	https://www.mewr.tj/?p=1234	2020	Tajkistan
В рамках Энергетического форума Узбекистан 2022, Министр энергетики и водных ресурсов Республики Таджикистан Далер Джумъа принял участие в совещании министров энергетики государств-членов ШОС.	Dans le cadre du Forum de l'énergie Ouzbékistan 2022, le ministre de l'Énergie et des Ressources en eau de la République du Tadjikistan, Daler Jum'a, a participé à la réunion des ministres de l'Énergie des États membres de l'OCS. – Ministère de l'Énergie et des Ressources en Eau de la République du Tadjikistan	2022	Tajkistan
Участие в 23-й Министерской конференции Программы ЦАРЭС	Participation à la 23e Conférence ministérielle du programme CAREC –	2024	Tajkistan

	Ministère de l'Énergie et des Ressources en Eau de la République du Tadjikistan		
Разрабатывается коммуникационная стратегия Рогунской ГЭС	La stratégie de communication pour la centrale centrale de Rogun est en cours d'élaboration – Ministère de l'Énergie et des Ressources en eau de la République du Tadjikistan	2024	Tajkistan
Integration of Central Asia – way to solve regional water and energy problems	Integration of Central Asia – way to solve regional water and energy problems - News Central Asia (nCa)	2016	Turkmenistan
Rogun Dam of Tajikistan – the need to reassess the entire project	Rogun Dam of Tajikistan – the need to reassess the entire project - News Central Asia (nCa)	2018	Turkmenistan
Eurasian Development Bank: By 2035, the capacity of hydroelectric power plants in Central Asia will grow by 8,900 MW	Eurasian Development Bank: By 2035, the capacity of hydroelectric power plants in Central Asia will grow by 8,900 MW - News Central Asia (nCa)	2023	Turkmenistan
President Kassym-Jomart Tokayev: Kazakhstan's strategic course to strengthen regional partnership and enhance the role of Central Asia on the world stage remains unwavering	President Kassym-Jomart Tokayev: Kazakhstan's strategic course to strengthen regional partnership and enhance the role of Central Asia on the world stage remains unwavering - News Central Asia (nCa)	2024	Turkmenistan
OPEC Fund for International Development deepens commitment to Central Asia – New Agreements signed with Turkmenistan, Tajikistan and Kazakhstan	OPEC Fund for International Development deepens commitment to Central Asia - New Agreements signed with Turkmenistan, Tajikistan and Kazakhstan - News Central Asia (nCa)	2024	Turkmenistan
The Renaissance of Central Asia: Towards Sustainable Development and Prosperity	The Renaissance of Central Asia: Towards Sustainable Development and Prosperity - News Central Asia (nCa)	2024	Turkmenistan
Kyrgyzstan explains its position on shared water resources	Kyrgyzstan explains its position on shared water resources - News Central Asia (nCa)	2024	Turkmenistan
Outcomes of the first Central Asia–EU Summit in Samarkand	Outcomes of the first Central Asia–EU Summit in Samarkand - News Central Asia (nCa)	2025	Turkmenistan

Annex 1.2 Documents for Kambar-ata-1 HPP

Source name	Link	Date	Country
Заложена капсула на месте строительства Верхне-Нарынского каскада ГЭС	News	2012	Kyrgyzstan
Президент Алмазбек Атамбаев принял участие в церемонии начала строительства Верхне-Нарынского каскада ГЭС	News	2013	Kyrgyzstan
Президент Алмазбек Атамбаев: Необходимо активизировать работу по	News	2013	Kyrgyzstan

строительству новых ГЭС в Кыргызстане			
Президент Алмазбек Атамбаев подписал Законы о денонсации Соглашений с Российской Федерацией о строительстве и эксплуатации Камбаратинской ГЭС-1 и Верхне-Нарынского каскада ГЭС	News	2016	Kyrgyzstan
Подписан Закон о ратификации Соглашения о предоставлении инвестиционного кредита по проекту «Ввод в эксплуатацию второго гидроагрегата Камбаратинской ГЭС-2»	News	2017	Kyrgyzstan
И.о. Президента Талант Мамытов ознакомился с проектом по модернизации Камбар-Атинской ГЭС-2	News	2020	Kyrgyzstan
Президент Садыр Жапаров: Начало строительства Камбар-Атинской ГЭС-1, будущего флагмана кыргызской энергетики, является большим шагом на пути к энергетической независимости страны	News	2022	Kyrgyzstan
Президент Садыр Жапаров: Экономические показатели ГЭС «Камбар-Ата-1» имеют общереспубликанский масштаб	News	2022	Kyrgyzstan
Президент Садыр Жапаров: “Камбарата-1” ГЭСинин долбоорун ишке ашыруу биздин парзыбыз жана келечек муундарыбыздын астындагы милдетибиз	News	2022	Kyrgyzstan
Kazakhstan and Austria strengthen energy partnership	Kazakhstan and Austria strengthen energy partnership	2024	Kazakhstan
Development of energy interaction between Kazakhstan and Uzbekistan discussed in Tashkent	GOV.KZ	2024	Kazakhstan
Energy Ministers of Kazakhstan, Kyrgyz Republic, and Uzbekistan Convened for the Second Ministerial Roundtable for Kambarata-1 HPP	News	2025	Kazakhstan
EIB Confirms its Interest in Expanding Cooperation with Kazakhstan	EIB Confirms its Interest in Expanding Cooperation with Kazakhstan	2025	Kazakhstan
Kazakhstan – a Key Energy Partner for the EU: New Agreements on Green Energy Signed in Brussels	Kazakhstan – a Key Energy Partner for the EU: New Agreements on Green Energy Signed in Brussels	2025	Kazakhstan
Government of Kazakhstan and World Bank strengthen strategic partnership	GOV.KZ	2025	Kazakhstan
Uzbekistan and Kyrgyzstan: measures to deepen multifaceted cooperation discussed	Uzbekistan and Kyrgyzstan: measures to deepen multifaceted cooperation discussed	2023	Uzbekistan

The 3rd Tashkent International Investment Forum: successful completion and promising results	The 3rd Tashkent International Investment Forum: successful completion and promising results	2024	Uzbekistan
Major capacities commissioned and a range of new energy facilities launched in Uzbekistan	Major capacities commissioned and a range of new energy facilities launched in Uzbekistan	2025	Uzbekistan
Integration of Central Asia – way to solve regional water and energy problems	Integration of Central Asia – way to solve regional water and energy problems - News Central Asia (nCa)	2016	Turkmenistan
Fourth Consultative Summit of the Leaders of Central Asian States in Kyrgyzstan laid out a joint vision and multiple initiatives on better regional aligning against external shocks	Fourth Consultative Summit of the Leaders of Central Asian States in Kyrgyzstan laid out a joint vision and multiple initiatives on better regional aligning against external shocks - News Central Asia (nCa)	2022	Turkmenistan
Uzbekistan and Kyrgyzstan enter into Comprehensive Strategic Partnership – 25 documents signed during the visit of Uzbek president to Kyrgyzstan	Uzbekistan and Kyrgyzstan enter into Comprehensive Strategic Partnership – 25 documents signed during the visit of Uzbek president to Kyrgyzstan - News Central Asia (nCa)	2023	Turkmenistan
Embassy of Kyrgyzstan in Turkmenistan conducts briefing for diplomats, media	Embassy of Kyrgyzstan in Turkmenistan conducts briefing for diplomats, media - News Central Asia (nCa)	2024	Turkmenistan
President Kassym-Jomart Tokayev: Kazakhstan's strategic course to strengthen regional partnership and enhance the role of Central Asia on the world stage remains unwavering	President Kassym-Jomart Tokayev: Kazakhstan's strategic course to strengthen regional partnership and enhance the role of Central Asia on the world stage remains unwavering - News Central Asia (nCa)	2024	Turkmenistan
Power Systems Cooperation in Central Asia	Power Systems Cooperation in Central Asia - News Central Asia (nCa)	2024	Turkmenistan
ADB President Highlights $10 Billion Investment Push as CAREC Marks 24th Ministerial Conference in Bishkek	ADB President Highlights $10 Billion Investment Push as CAREC Marks 24th Ministerial Conference in Bishkek - News Central Asia (nCa)	2025	Turkmenistan
Outcomes of the first Central Asia–EU Summit in Samarkand	Outcomes of the first Central Asia–EU Summit in Samarkand - News Central Asia (nCa)	2025	Turkmenistan
Central Asia's New Energy Pact: Three Nations Unite for Major Hydropower Project	Central Asia's New Energy Pact: Three Nations Unite for Major Hydropower Project - News Central Asia (nCa)	2026	Turkmenistan
Kyrgyz Republic: Gold Is Not Enough	World Bank Documnt	2012	World Bank
Concept Environmental and Social Review Summary Concept Stage	World Bank Document	2022	World Bank
Technical Assistance for Kambarata 1 Hydropower Plant Project (PID)	World Bank Document	2023	World Bank
Kambarata-1 Hydropower Plant Project (HPP) FAQ	FAQ	2025	World Bank
Kambarata-1 Hydropower Plant Project (HPP) Information	Kambarata-1 Hydropower Plant Project (HPP)	2025	World Bank
Technical Assistance for Kambarata 1 Hydropower Plant Project	World Bank Document	2025	World Bank

STAKEHOLDER ENGAGEMENT PLAN & GRIEVANCE REDRESS MECHANISM	World Bank Document	2025	World Bank

Annex 1.3 Documents for IFAS

Source name	Link	Date	Source
ARAL SEA DAY	ARAL SEA DAY	2019	Kazakhstan
Roman Sklyar took part in the meeting of the International Fund for Saving the Aral Sea	Roman Sklyar Sea	2022	Kazakhstan
Kassym-Jomart Tokayev attends the meeting of the Council of Heads of State – Founders of the International Fund for Saving the Aral Sea	Kassym-Jomart Tokayev	2023	Kazakhstan
On the commencement of Astana's Chairmanship in the International Fund for Saving the Aral Sea	IFAS	2024	Kazakhstan
Olzhas Bektenov discussed with the heads of the delegation of the Central Asian countries Asia priorities of the Aral Sea Rescue Fund	Olzhas Bektenov	2024	Kazakhstan
Cooperation on Aral Basin Issues Discussed at Trilateral Online Meeting	GOV.KZ	2025	Kazakhstan
Kazakhstan highlights outcomes as IFAS chair	Kazakhstan highlights outcomes as IFAS chair	2026	Kazakhstan
THE INTERNATIONAL FUND FOR SAVING THE ARAL SEA	aral.uz/doc/ec_ifas.pdf	2013	Uzbekistan
HANDBOOK ON WATER RESOURCES MANAGEMENT IN UZBEKISTAN	Handbook_WRM_Sokolov_ENG.pdf	2018	Uzbekistan
25YEARS OF ACTIVITIES INTERNATIONAL FUND FOR SAVING THE ARAL SEA AND NEW IMPULSES FOR DEVELOPMENT OF THE ARAL SEA REGION	aral.uz/doc/25ifas_eng.pdf	2019	Uzbekistan
International Fund for Saving the Aral Sea as a Platform for Sustainable Development of Central Asia	IFAS	2023	Uzbekistan
Participation in the summit of the Heads of the States-founders of the International Fund for Saving the Aral Sea	President of Tajikistan | Foreign Trips	2018	Tajikistan
Meeting with the President of Turkmenistan Gurbanguly Berdimuhamedow	President of Tajikistan | Meetings	2018	Tajikistan
Tajikistan - Uzbekistan Summit Meeting	President of Tajikistan	2021	Tajikistan
Meeting with the President of the Kyrgyz Republic Sadyr Japarov	President of Tajikistan | Meetings	2022	Tajikistan
Climate Change and Water Cooperation in Central Asia – Shared challenges, joint strategy	IFAS	2017	Turkmenistan

International Conference “Central Asia: towards sustainable future through strong regional institution”	IFAS	2019	Turkmenistan
‘Water Diplomacy’ highlighted in telephone conversation between presidents of Turkmenistan, Uzbekistan	Water Diplomacy	2019	Turkmenistan
Kyrgyzstan Eyes IFAS Return, But Only If All Countries’ Interests Are Considered Equally	IFAS	2023	Turkmenistan
President of Uzbekistan: It is important that the IFAS reform process is based on the principle of “water – energy – food”	IFAS	2023	Turkmenistan
IFAS Projects worth over $590 million aim to improve lives of 60 million in Aral Basin	IFAS	2023	Turkmenistan
President of Turkmenistan Serdar Berdimuhamedov: “The Central Asian Water Strategy could become the basis for the development of the UN Global Water Strategy in the future”	President of Turkmenistan	2023	Turkmenistan
Special Representative of UN Secretary-General for Central Asia addresses the Council of heads of founding states of the International Fund for Saving the Aral sea	IFAS	2023	Turkmenistan
President of Kazakhstan initiates creating an International water and energy consortium in Central Asia	IFAS	2023	Turkmenistan
Tajikistan starts preparing for the September summits of the heads of Central Asian states and IFAS	President of Turkmenistan	2023	Turkmenistan
IFAS and AFD Join Forces to Secure Water Future in Central Asia	IFAS	2024	Turkmenistan
Kazakhstan and Uzbekistan to install automatic water metering systems in the Syr Darya	IFAS	2024	Turkmenistan
Президент Сооронбай Жээнбеков: Кыргызстан выступает за комплексное реформирование МФСА с учетом интересов всех государств Центральной Азии	News	2018	Kyrgyzstan
Aral Sea Water and Environmental Project	World Bank Document	2003	World Bank
IMPLEMENTATION COMPLETION REPORT	World Bank Document	2004	World Bank
World Bank and International Fund for Saving the Aral Sea Will Cooperate on the Aral Sea Basin Management Program	World Bank Document	2014	World Bank
Climate Adaptation and Mitigation Program for Aral Sea Basin	World Bank Document	2015	World Bank
CAWEP Program Activitty Highlights	World Bank Document	2021	World Bank

CAWEP Quarterly Newsletter	World Bank Document	2022	World Bank
Central Asia Hydrometeorology Modernization Project	World Bank Document	2023	World Bank
CAWEP Quarterly Newsletter April-June 2023	World Bank Document	2023	World Bank

Annex 1.4 Documents for Qosh-Tepa Canal

Source name	Link	Date	Country
Afghanistan is building an enormous canal to draw water from Amudarya River. This may affect water availability situation in Central Asia.	Afghanistan is building an enormous canal to draw water from Amudarya River. This may affect water availability situation in Central Asia. - News Central Asia (nCa)	2023	Turkmenistan
President of Uzbekistan: It is important that the IFAS reform process is based on the principle of “water – energy – food”	President of Uzbekistan: It is important that the IFAS reform process is based on the principle of "water – energy – food" - News Central Asia (nCa)	2023	Turkmenistan
The Lifeline: Siberian Rivers May Save Central Asia	The Lifeline: Siberian Rivers May Save Central Asia - News Central Asia (nCa)	2025	Turkmenistan
Address by the President of the Republic of Uzbekistan Shavkat Mirziyoyev at a meeting of the Council of Heads of the Founder States of the International Fund for Saving the Aral Sea	Address by the President of the Republic of Uzbekistan Shavkat Mirziyoyev at a meeting of the Council of Heads of the Founder States of the International Fund for Saving the Aral Sea	2023	Uzbekistan
CAWEP Annual Report	World Bank Document	2023	World Bank
South Asia Macro Poverty Outlook	mpo-sm23-sar.pdf	2023	World Bank
THE AFGHAN PART OF AMU DARYA BASIN	Microsoft Word - Draft_FAO_Paper_08OCT2010_-WK final.docx	2010	UN
National State of the Environment Report	National State of the Environment Report: Uzbekistan	2023	UN
National State of the Environment Report Illustration	Non-technical Illustrative Summary of UZB NSoER.pdf	2024	UN
Meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes	ECE_MP.WAT_WG.1_2025_3-ECE_MP.WAT_WG.2_2025_3_ENG.pdf	2025	UN
Central Asia Environmental performance reviews	Scoping Report Regional EPR Central Asia 13April2026_0.pdf	2026	UN
Uzbekistan Sustainable Development Cooperation Framework	CF Uzbekistan 2026-2030_FINAL.pdf	2026	UN
Experts from Central Asia discussed the impact of the construction of the Afghan Kushtepa Canal on the water balance in Central Asia	Experts from Central Asia discussed the impact of the construction of the Afghan Kushtepa Canal on the water balance in Central Asia - CABAR.asia	2023	Kyrgyzstan

Annex 2 Sample of Individual SWOT analysis tables

One of these tables was filled in for each document listed in Annex 1. The point of this annex is to give a sample of the data collection to show in what form it was conducted. The content of this analysis was then combined and sorted into themes, leading to tables 3, 4, 5 and 6.

Annex 2.1 Rogun Dam Final Report of the Environmental and Social Panel of Experts

Strengths : No significant impact on local and regional climate because small exposed water surface (evaporation not issue). GHG emissions not significant, and HPP may reduce them if used instead of carbon based fuels Minor significance for impact on fauna and flora and natural habitats	**Weaknesses** : Health and safety standards well below international standards Legal analysis shows that water sharing agreements are not enforceable and don't have enforcement and dispute resolution mechanisms "Although Rogun HPP will have a minimal impact on the Aral Sea the Panel is concerned about this apparent disregard for the problem of the Aral Sea and recommends that in any future modification of Central Asian water sharing agreements proper provision be made for an enforceable allocation to the Aral Sea."
Opportunities : Imperative that Taj use of water is in accordance with numerous water sharing agreements. "To promote harmony and to avoid future misunderstandings due to differences in interpretation of the rules governing water allocations from the Amu Darya, revised agreements between Central Asian countries, including Afghanistan, that are clear, transparent, enforceable, and monitored are required, irrespective of whether Rogun is built or not." The ESIA addresses valuable ecosystems and protected areas in downstream riparian countries as an integral part of the general discussion of downstream impacts.	**Threats** : Climate change may lead to greater average flow volumes, and greater variability, until glaciers melt and then annual flow will decrease In general, the additional storage capacity of Rogun could help buffer the increased variability. Afghanistan not included in regional agreements.

Annex 2.2 Outcomes of the first Central Asia–EU Summit in Samarkand (Kambar-ata-1 HPP)

Strengths	**Opportunities**
Japarov presented the flagship project of the Kambar Ata HPP-1, which Kyrgyzstan is building jointly with Kazakhstan and Uzbekistan. The new 1,860 MW hydroelectric power plant will generate 5.6 billion kWh of electricity per year. The President noted that Kyrgyzstan is actively developing renewable energy sources. Over the past year, 18 small hydroelectric power plants have been commissioned in the country, and 15 more are under construction in 2025. In parallel, projects in the solar energy sector with a total capacity of more than 400 MW are being implemented. According to Japarov, in the context of global climate change, the transition to a "green" economy and the development of renewable energy sources is only option path to sustainable development.	The Pact has four priorities: 1. Transport with the flagship project of the Trans-Caspian Transport Corridor; 2. Climate, energy and water (Rogun and Kambarata dam projects, green belt in the Aral Sea basin); 3. Digital technologies. 4.Critical raw materials of Central Asia, much needed by the European Union (creation of local value chains for the critical minerals in Central Asia). According to von der Leyen, Central Asia aims to be a clean energy hub: wind in Kazakhstan, solar in Uzbekistan and Turkmenistan, hydro in Tajikistan and Kyrgyzstan. She paid special attention to the Rogun Dam project in Tajikistan and the Kambarata Dam in Kyrgyzstan. Combined these facilities, Central Asia can become a clean energy powerhouse. Driving electric trains, industry and mining, and exporting energy to neighbours.
Weaknesses	**Threats**

Annex 2.3 President Sooronbai Jeenbekov: Kyrgyzstan stands for comprehensive reform of IFAS taking into account the interests of all Central Asian states

Strengths	**Opportunities**
resuming cooperation within the framework of the Agreement between the governments of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan on the use of water and energy resources in the Naryn-Syrdarya river basin of March 17, 1998, which provides for a compensatory mechanism for the use of water and energy resources.	Kyrgyzstan proposes to withdraw the Interstate Commission for Water Coordination and the Interstate Commission on Sustainable Development and their executive bodies from the IFAS structure. Instead, consider the establishment of new bodies for the integrated management of water and energy resources, taking into account hydropower and sustainable development. Revise the system of financial contributions of the IFAS founding states taking into account the needs and capabilities of the states of the region and to implement them on a voluntary basis.

	When reforming the Fund, take into account the experience of such international organizations as the UN, the SCO, and others.
Weaknesses "At present, the Fund is characterized by contradictions in regulatory legal documents, an inefficient structure of executive bodies. There are no transparent mechanisms for reporting on attracted funding, the location of the Fund's statutory bodies is not balanced, and there is no rotation of their heads for a long time," the President said. However, there has been no progress in this area, despite the decision taken by the heads of state to improve the structure and legal framework of IFAS Within the framework of the participation of the Kyrgyz side in IFAS, no projects in the field of irrigation have been implemented in Kyrgyzstan for all these years. This says a lot. It is also necessary to revise the scale of contributions of the Central Asian states to IFAS He noted that within the framework of IFAS, there is no compensatory mechanism for the accumulation of water resources in the upstream countries for their supply for irrigation needs to friendly neighboring states, although such mutually beneficial cooperation is successfully implemented in world practice.	**Threats** The time has come to conduct a comprehensive analysis of the effectiveness of the Fund's bodies during this entire period. It is necessary to assess the implementation of the First, Second and Third Action Programs to assist the countries of the Aral Sea basin, to study what the financial resources were allocated to and how fairly and balanced the interests of all countries of the region were taken into account. At present, the existing water allocation system does not meet modern realities and needs to be revised taking into account the interests of sustainable development of the countries of the region. It is no secret that most issues in the field of water use are resolved between the countries of the region on a bilateral or trilateral basis outside the framework of IFAS.

Annex 2.4 President Sooronbai Jeenbekov: Kyrgyzstan stands for comprehensive reform of IFAS taking into account the interests of all Central Asian states

Strengths	**Opportunities**
CAWEP's long-term vision is to promote sustainable development and livelihood security in Central Asia and Afghanistan, which aligns with the World Bank's regional engagement framework designed to strengthen connectivity and increase the economic value of water and energy resources in the region.	Central Asian countries and Afghanistan are committed to adopting green economic growth and reducing greenhouse gas emissions by 2030. Strengthening Capacity in Afghanistan for Greater Collaboration with Tajikistan on Hydromet, Flood Risk Management, and Early Warning Services. Activities of CAWEP

CAWEP's long-term vision is to promote sustainable development and livelihood security in Central Asia and Afghanistan Analysis of Synchronized Operation of Afghanistan and Central Asia Power Systems | Country or region	Million dollars
Afghanistan	0.21
Kazakhstan	2.00
Kyrgyz Republic	0.99
Tajikistan	2.13
Turkmenistan	0.00
Uzbekistan	1.03
Total national funding	6.36
Regional funding	5.13
Total	**11.49** | 2023: Afghanistan-Tajikistan 5-year memorandum of understanding on environmental protection signed September 2020	on water, energy and water-energy linkage pillars everywhere, including Afghanistan
Weaknesses Concerns about water and energy security in the region are increasing. In addition to climate change impacts, the potential impact of the Qosh Tepa Canal in Afghanistan on water management in the region has alarmed other countries in the region.	**Threats** Afghanistan imports 80 percent of its electricity and is facing growing debts to neighboring Tajikistan and Uzbekistan for the purchase of electricity